ENGINEERING NEWS-RECORD

JAN. 8, 1959

PRICE 50 CENTS

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For Heavy Construction:

'58 Second Best Year

'59 Even Better p. 21

A McGRAW-HILL PUBLICATION

PDM
ELEVATED STEEL TANKS

When your elevated water storage needs are large in scale depend upon the unequalled experience of

Pittsburgh-Des Moines

Elevated steel tanks of largest size are supplied by PDM to meet the increasing water storage volumes required by America's ever-expanding communities.

● Engineering of highest excellence, precision fabrication and sure craftsmanship in erection have distinguished Elevated Steel Tanks by Pittsburgh-Des Moines since 1897. Write for prompt quotations.

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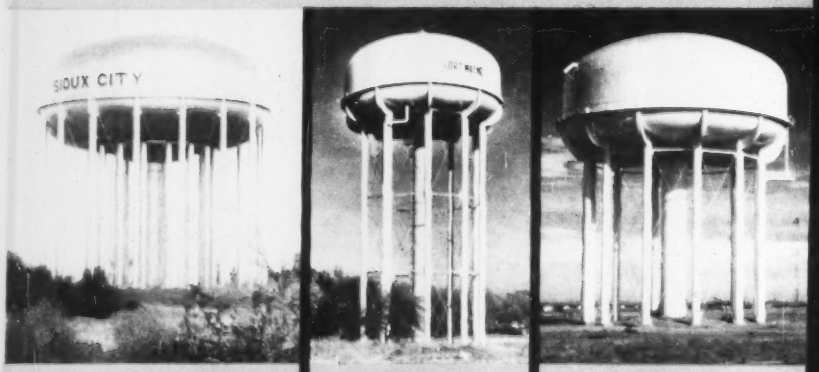
Pittsburgh, Pa. 2,500,000 Gallons



Sioux City, Ia. 2,000,000 Gallons

Fort Wayne, Ind. 1,000,000 Gallons

Pueblo, Colo. 1,500,000 Gallons

It's making the grade— at a 13-to-1 saving!

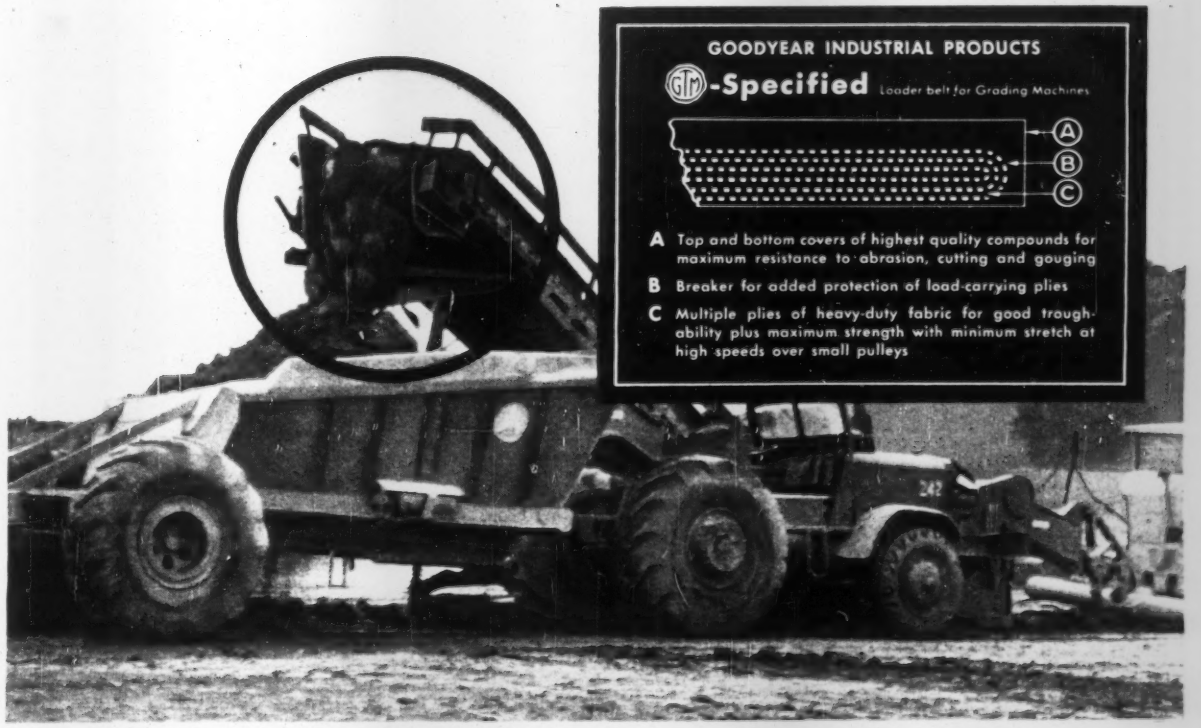
WHEN this top Eastern road builder hit a particularly tough, 18-mile stretch of grading, the belts on his big earth-loaders just couldn't take it. Under the staggering flow of 20% to 30% shale and rock, they failed after only 25,000 cubic yards. And replacements ran $2,000-plus apiece.

An SOS went out for the G.T.M.–Goodyear Technical Man. After some study, he recommended a belt especially designed for loader service. It's muscled with heavy-duty fabric for maximum strength with minimum stretch. And its super-tough cover is highly resistant to cutting, gouging and abrasion.

The pay-off: The G.T.M.'s belt handled 97,000 cubic yards on the first cut alone—*a phenomenal 337,000 cubic yards of the same murderous material—without a single take-up—before retirement.* That's 13 times previous belt life—*more than $25,000 saved—per loader.*

Even tremendous savings like these aren't unusual when the G.T.M. tackles the problem. To cash in on his famed cost-cutting abilities, contact him through your Goodyear Distributor—or write Goodyear, Industrial Products Division, Akron 16, Ohio.

IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and non-rubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

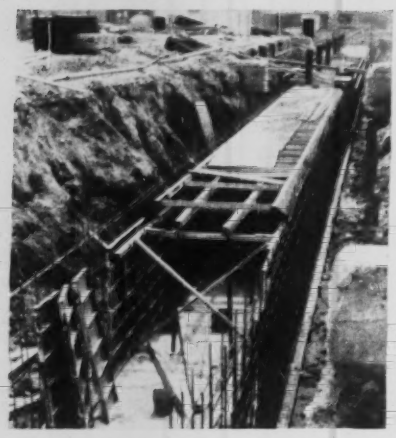

GOODYEAR INDUSTRIAL PRODUCTS
GTM-Specified Loader belt for Grading Machines
A
B
C
A Top and bottom covers of highest quality compounds for maximum resistance to abrasion, cutting and gouging
B Breaker for added protection of load-carrying plies
C Multiple plies of heavy-duty fabric for good troughability plus maximum strength with minimum stretch at high speeds over small pulleys

CONVEYOR BELTS BY

GOODYEAR

THE GREATEST NAME IN RUBBER

Job Finished 3 Weeks

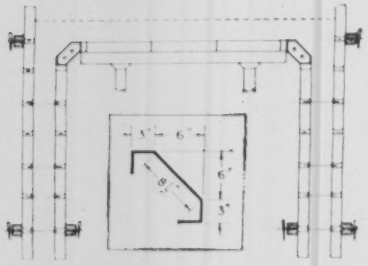


How to Pour a Tunnel in a Hurry...

Symons Culvert Forms The Answer

When awarded a contract to build a 340 ft. tunnel, Schweiger Construction Company, Kansas City, Mo., faced the problem of how to do it fast and as economically as possible.

Symons Culvert Forms solved the problem. They eliminated the need for any special form or job-built construction.



Schweiger used Symons 1" steel channel filler horizontally on top of 6' vertical panels on the inside of the walls. Culvert Forms were placed on top of this filler. The forms underneath were stripped with no difficulty and the fillers and culvert forms were then removed without disturbing the decking for the slab, which was left in place for an additional curing period. Walls and top slab were poured monolithically in three pours. *Job was completed in three weeks.*

Symons forms, shores and column clamps may be rented with purchase option. Additional information on *Symons Culvert Forms* is available upon request.

Symons

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EIGHTY-FIFTH YEAR OF PUBLICATION

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ENGINEERING NEWS-RECORD, Vol. 162, No. 1, JANUARY 8, 1959

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Publication Office, 99-129 North Broadway, Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices, McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, President, Publications Division; Shelton Fisher, Senior Vice President; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second Class mail privileges authorized at Albany, New York. Printed in U. S. A.

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LET'S TALK ABOUT EASE

—of shovel and crane operation

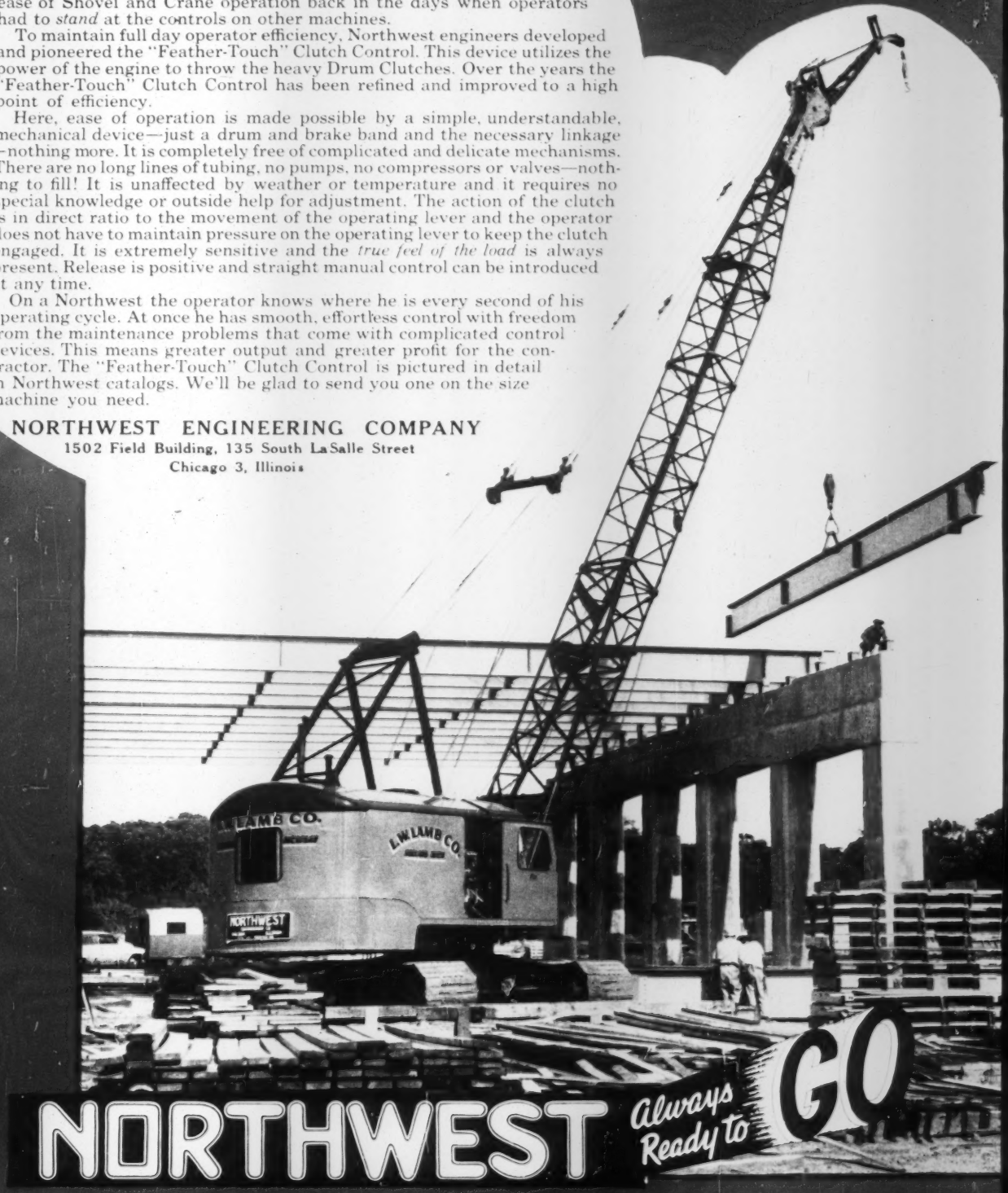
It was Northwest that pioneered the movement in the direction of ease of Shovel and Crane operation back in the days when operators had to *stand* at the controls on other machines.

To maintain full day operator efficiency, Northwest engineers developed and pioneered the "Feather-Touch" Clutch Control. This device utilizes the power of the engine to throw the heavy Drum Clutches. Over the years the "Feather-Touch" Clutch Control has been refined and improved to a high point of efficiency.

Here, ease of operation is made possible by a simple, understandable, mechanical device—just a drum and brake band and the necessary linkage—nothing more. It is completely free of complicated and delicate mechanisms. There are no long lines of tubing, no pumps, no compressors or valves—nothing to fill! It is unaffected by weather or temperature and it requires no special knowledge or outside help for adjustment. The action of the clutch is in direct ratio to the movement of the operating lever and the operator does not have to maintain pressure on the operating lever to keep the clutch engaged. It is extremely sensitive and the *true feel of the load* is always present. Release is positive and straight manual control can be introduced at any time.

On a Northwest the operator knows where he is every second of his operating cycle. At once he has smooth, effortless control with freedom from the maintenance problems that come with complicated control devices. This means greater output and greater profit for the contractor. The "Feather-Touch" Clutch Control is pictured in detail in Northwest catalogs. We'll be glad to send you one on the size machine you need.

NORTHWEST ENGINEERING COMPANY
1502 Field Building, 135 South LaSalle Street
Chicago 3, Illinois



NORTHWEST *Always Ready to* **GO**

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U-91-1CO

Link-Belt Speeder introduces

NEW LS-108

40-TON CRAWLER CRANE

- Strips to 32,000 lbs. and 8′ width in 2 hours or less
- Lifts and walks with more than its own weight
- Unassisted, lifts and handles up to 160′ of new "HI-LITE" boom and jib

Here's a machine that combines high lifting capacity with exceptional mobility and transportability. Imagine a lifting crane that lifts and walks with 80,000 lbs. yet strips down for transport in 2 hours or less to approximately 32,000 lbs. and 8′ width.

In addition, the LS-108 introduces an entirely new *low-cost concept* in 40-ton lifting cranes. Just compare this list of lifting crane features with any other crane on the market: power hydraulic controls, reversing clutches for either or both main operating drums, two speed travel in either direction, independent swing and travel, independent rapid boomhoist with boom-lowering clutch, powerful third drum and many others. And the LS-108 is convertible to standard hoe, clamshell or dragline attachments.

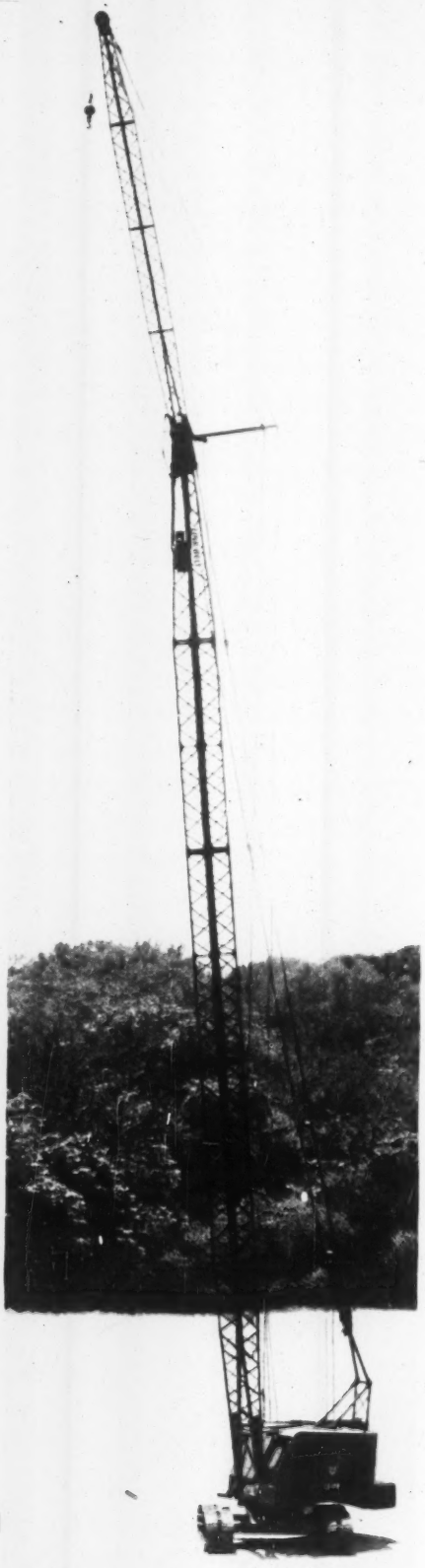
See your Link-Belt Speeder distributor for new catalog or write Link-Belt Speeder Corporation, Cedar Rapids, Iowa. 14,908

READY FOR TRANSPORT IN 2 HOURS OR LESS. Using the powered gantry, the counterweight is removed. Travel onto lowboy, block up and remove both side frames without help from auxiliary crane. After removing the attachment (and with crawlers on a separate trailer), you're stripped from 78,200 lbs. to a travel weight of approximately 32,000 lbs. . . . and to an over-all width of 8 ft.

LINK-BELT SPEEDER

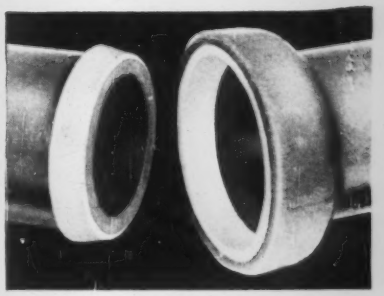
21 crawlers | 6 truck-cranes | 4 self-propelled

It's time to compare . . . with Link-Belt Speeder



over 100,000 miles of AMVIT Jointed Clay Pipe installed in FOUR YEARS

Only Factory-Made Mechanical Joint
With an Outstanding Service Record
In Hundreds of Vital Sewer Systems



Never before in the history of the sanitary sewer construction industry has a product gained such immediate and wide acceptance and usage in such a short period of time.

In the past few years, over 100,000 miles of Amvit* have been installed across the country with outstanding results.

Experience has shown Amvit is the engineer's choice. Here's why:—

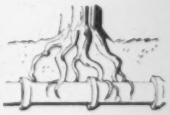
1 QUICK INSTALLATION SAVES LABOR

Amvit Jointed Clay Pipe is delivered to the job site ready for use. Just push the pipe together and the joint is made — sure and tight. No more fussing with caulking, hot pots, joint compound.

2 FACTORY-MADE QUALITY

The Amvit Joint is manufactured from plasticized resins of polyvinyl chloride. No other combination of materials is used or needed. It is applied on the pipe at the factory and delivered ready for immediate installation.

3 ROOTPROOF



The design of the Amvit Joint is based on the ball and socket principle. The material on the spigot end is convex shape, with the bell in a concave shape. This permits easy and rapid installation. When the joint is made, it reaches maximum compression which results in a really tight line. Nothing can enter the line.

4 PREVENTS INFILTRATION

Due to the tightness of the joint, ground water cannot enter the line. Since infiltration is eliminated, the sanitary sewer does not have to carry anything other than that for which it was designed. This permits the use of smaller sized pipe in many instances and will reduce material cost.

5 BETTER FLOW, LESS MAINTENANCE

The design of the Amvit Joint assures self-centering which gives a smoother invert and better flow characteristics. Because the joint is really tight, no foreign matter such as dirt, sand, and stones can possibly enter the line.

6 COMPLETE FITTINGS

Amvit is furnished on all standard fittings, as well as pipe from 4" thru 24" diameters. It is now available for immediate delivery in Northeast and Central States.

For a new descriptive folder on how Amvit can help you cut sewer project costs, write American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

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AMERICAN

American Vitrified Products Company

CLEVELAND OHIO

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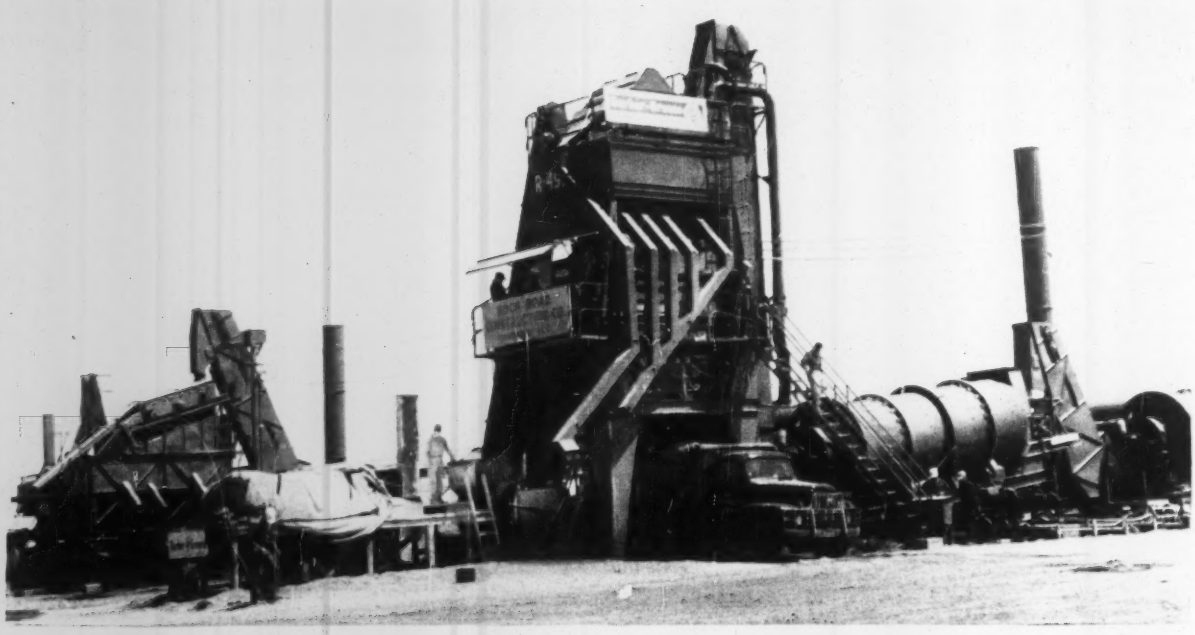


At left is the Barber-Greene Continuous Plant; at right is the BatchOmatic. Together these plants produced all asphalt tonnage on the test road. Both proved their ability to meet abnormally rigid specifications.

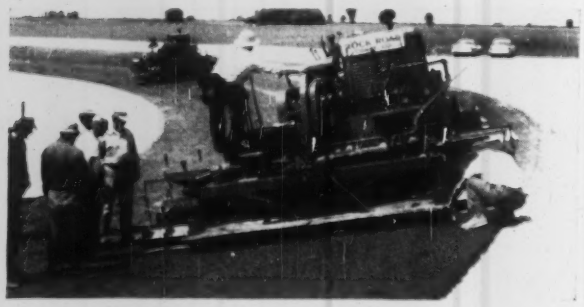
Barber-Greenes meet tight AASHO test road specs

Two Barber-Greene Asphalt Plants, a continuous type and a BatchOmatic, produced every ton of asphalt mix on the AASHO test road near Ottawa, Ill. Every ton was laid with Barber-Greene Finishers.

Specifications on this important test road were more rigid than any normally encountered in highway work. Probably no asphalt mixing and paving equipment has ever before been called upon to meet such close tolerances.

Hundreds of combinations of asphalt mixes and base and surface thicknesses were required. Each operation had to fall within the time limits specified by a rigid time schedule.

"We knew that Barber-Greene Asphalt Plants and Finishers had the ability to meet these rigid specifications," commented the asphalt contractor, Rock Road Construction Company of Chicago. With over 20 years' experience in the operation of Barber-Greene Asphalt Paving Equipment, the results again justify their confidence in Barber-Greene.



Paving steep super-elevations while staying within close specification tolerances was just one of the stringent requirements successfully met by Barber-Greene Finishers on the test road.

Paving on crawlers and traveling on rubber, the new Barber-Greene Model 873 Finisher paved all the test road's 6′ asphalt shoulders in four days—at 64 different locations.

58-48-AL

Write for information on the world's most modern asphalt paving equipment.

Barber-Greene BG

AURORA, ILLINOIS, U. S. A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

MORE THAN 2,000 PRESTRESSED CONCRETE WATER TANKS IN SERVICE

In the development of residential and industrial water supply facilities today, no other type of tank offers so many advantages as does the Prestressed Concrete Tank. Modern in engineering and design, proven in service, lowest in cost... prestressed concrete should be considered in any tank planning.

Check these advantages:

- No maintenance required
- Owners never return to other types
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- Lowest overall cost to community
- Longest service life of any tank

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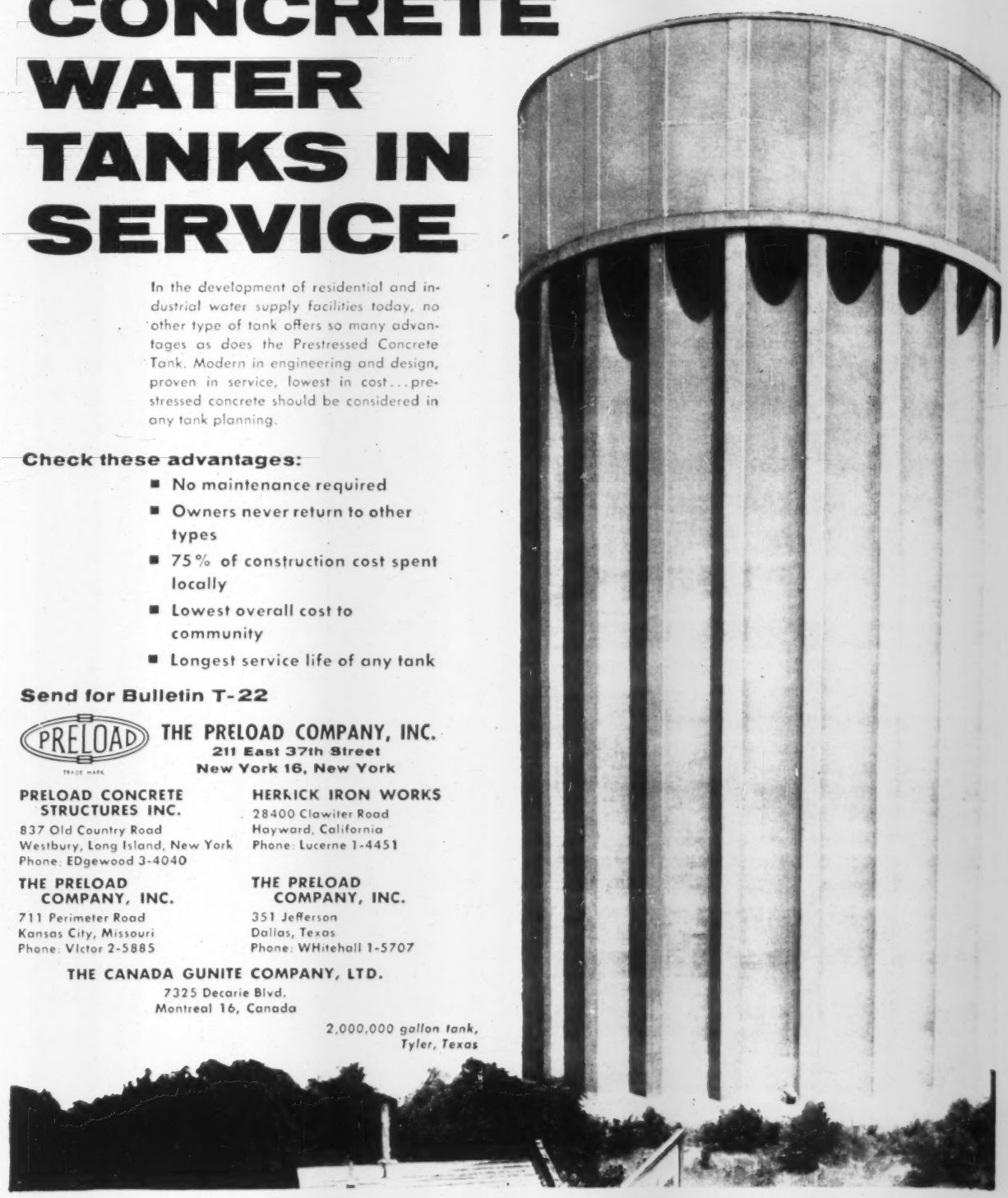


2,000,000 gallon tank, Tyler, Texas

Professional Unity: The Case Against EJC

SIR—In an editorial in ENGINEERING NEWS-RECORD, Nov. 6, 1958, it is stated that the National Society of Professional Engineers is the only major engineering society not affiliated with Engineers Joint Council.

At present EJC consists of 14 technical societies and four geographical groups. The largest EJC society is the American Institute of Electrical Engineers with a membership of 52,000.

However, the American Welding Society, American Road Builders Association, American Society for Testing Materials, National Association of Power Engineers, and Institute of Aeronautical Sciences each has well over 10,000 members; the American Association of Engineers has over 15,000; the Society of Automotive Engineers 20,000; the American Society of Tool Engineers 33,000; and the Institute of Radio Engineers 60,000. None of these societies is affiliated with EJC.

Which societies should join EJC? The Encyclopedia of American Associations (from which most of the above figures were taken) lists no less than seventy "engineering" associations. Not all of their members are engineers, however. The American Water Works Association (11,000 members), for example, a member society of EJC, is listed as consisting of "superintendents, engineers, chemists, and board of health and water board officials."

The list includes such diverse groups as the Institute of Food Technologists, Association of Senior Engineers of the Bureau of Ships, Conference of Utility Commission Engineers, Society of Women Engineers, and Association of Mutual Fire Insurance Engineers.

Also listed are some twenty sizable organizations whose activities border closely on engineering, such as the American Society for Metals (26,000 members) and the American Chemical Society (74,000). Not listed are numerous purely geographical and nationalistic groups.

The Institute of Radio Engineers declined to join EJC primarily because of IRE's basic policies not to engage in any legislative activity, and not to take a definite stand before the public even on technical matters. But it stressed also that few of its members are licensed engineers, while many are physicists, chemists, etc.

EJC can serve an important need as a sort of public "clearing house" for technological information, by promoting cooperation and coordination among the many branches of engineering, and by encouraging and formulating sound public policies in matters depending on engineering technical knowledge. But it is clear that it cannot effectively "speak for" engineers, because many members of its affiliated societies are not engineers at all. If NSPE were to join EJC, precisely whom would it represent?

The problem is further complicated by the diversity of membership requirements in the different societies, and different grades in some of them. All that is necessary to become an "Associate" in the IRE, for example, is to "be interested in the theory or practice of radio engineering or of the allied arts and sciences." Essentially the same is true of the "Affiliate" grade in the AIEE. Each society has several higher membership grades. In contrast, the NSPE has only one grade, and the sole prerequisite for membership is legal registration.

IRE and NSPE have both insisted, and AIEE has recognized (on the basis of a questionnaire to its members in about 1948) that ultimately the control of the unity organization must be in the hands of the *individual* engineers.

EJC (organized in 1941), like its predecessor, the American Engineering Council (established in 1920, dissolved in 1940), is a federation of societies. The individual engineer pays no direct dues for its support and receives no direct report of its activities. Thus, it is remote from the individual engineer, and probably many engineers have never even heard of it.

In many minds the problem of unification of the engineering profession is inextricably entangled with the problem of defining who or what an engineer is. NSPE contends that the latter problem has already been solved. Every state of the United States now has a statute defining and governing the practice of engineering as well as medicine, law, and other categories of persons whose work affects the protection of life, health, rights, and property.

The registration acts for engineers are not uniform among the states, and none of them is perfect. But NSPE has recognized for 25 years now that registration alone gives engineers status before the courts and legislative bodies, and qualifies them to engage in practice involving direct contact with the public.

NSPE is the only sizable national organization that restricts its membership to registered engineers. It does not pretend to represent anyone else. It has refrained from entering into technical activities. With a quarter of a century of experience in dealing with the so-called professional aspects of engineering (registration, employment practices, salaries and fees, legislation, ethics, etc.), it can well claim to be the true and logical spokesman for engineers in such matters. AIEE has wisely recognized this fact in formulating its proposal.

(The views expressed in this letter are those of the writer, and not necessarily those of any organization.)

KEITH W. HENDERSON,
East Palo Alto, Calif.
Member, AIEE, IRE and NSPE

Editor's Note: For a restatement of the case for EJC, with special reference to Reader Henderson's comment, see Editorials, p. 124.

Made In Norway

SIR—I would like to add the following to USSR-Norway Pasvik Hydro Project (ENR, December 18, p. 53). During negotiations the Russians expressed their wish that a Norwegian firm construct the second power plant (Boris Gleb) complete. Norwegian authorities referred the idea to Noreno (Norwegian Engineering Export Organization).

Noreno turned to A/S Hafslund—a Norwegian water power company—as a firm well suited for the job because this concern owns several similar plants. Hafslund has taken a positive attitude, and together with Noreno they have formed Norelektro & Co., which will take over the project.

ARNE SOLEM
Oslo, Norway

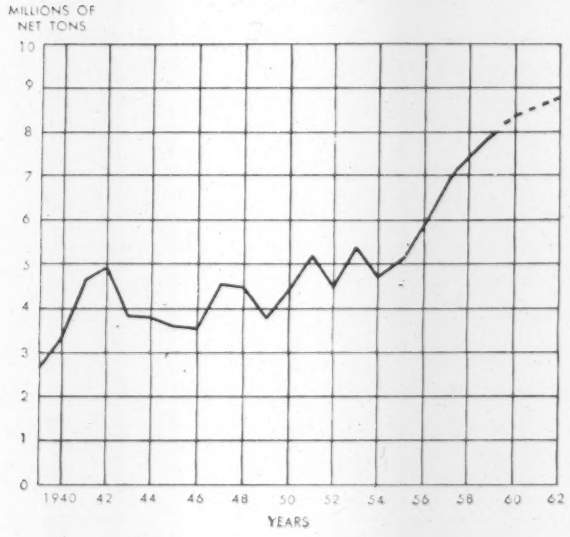
(Reader Comment continued page 15)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

MORE structural steel is available- now and in the years to come

In 1959 builders of highways, bridges and buildings will have available more steel than ever before. The steel industry (and Bethlehem Steel in particular) has expanded facilities for producing structural shapes so that there *is* steel for the job.

RISE IN STEEL INDUSTRY'S PRODUCTION OF HEAVY STRUCTURAL SHAPES



We estimate the industry will be able to turn out 8 million tons of structural steel in 1959. What's more, it is estimated that anticipated expansion will bring the industry's capacity up to 9 million tons annually by the mid 1960's.

BETHLEHEM INCREASES CAPACITY

Since our Bethlehem, Pa., plant is the largest single unit producing structural shapes in the country, its role is a most important one.

In 1955, for example, we were caught in a squeeze. We had foreseen the increased demand and had already started a huge expansion program a year earlier. Expansion on such a major scale required the shutting down of some facilities, and just at that critical period, the boom hit. So while we were in the midst of trying to relieve the shortage of the future, we were temporarily unable to turn out as much as before.

But it all paid off. Today Bethlehem is able to turn out over 3 million tons of shapes each year, or about 40 per cent of the entire industry's total.

Structural steel *is* available. You can plan and design in structural steel with complete assurance, both now and in the years to come.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

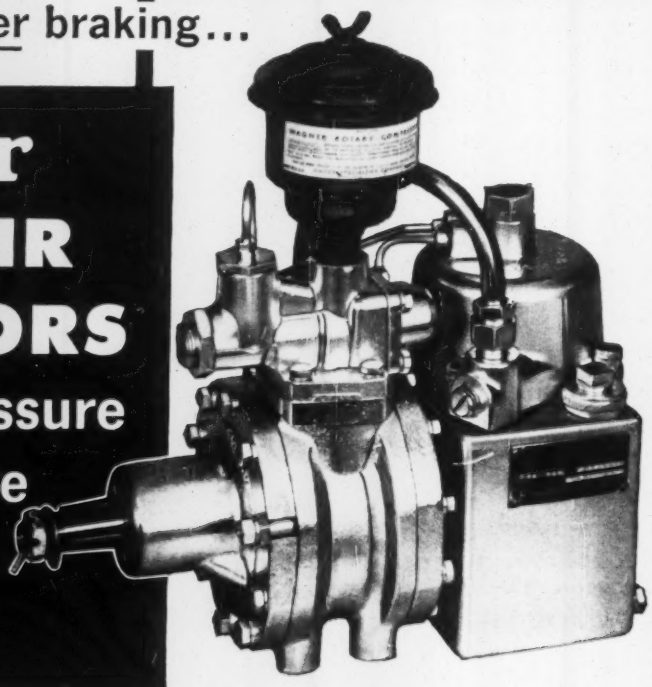
BETHLEHEM STEEL

BETHLEHEM STEEL

more air reserve for safer braking...

Wagner ROTARY AIR COMPRESSORS

provide rapid pressure recovery to assure ample air at all times



Wagner Rotary Air Compressors have what it takes to deliver a constant and smooth flowing supply of compressed air at all times. Their ability to provide rapid pressure recovery means safer stopping power even under the most severe braking conditions.

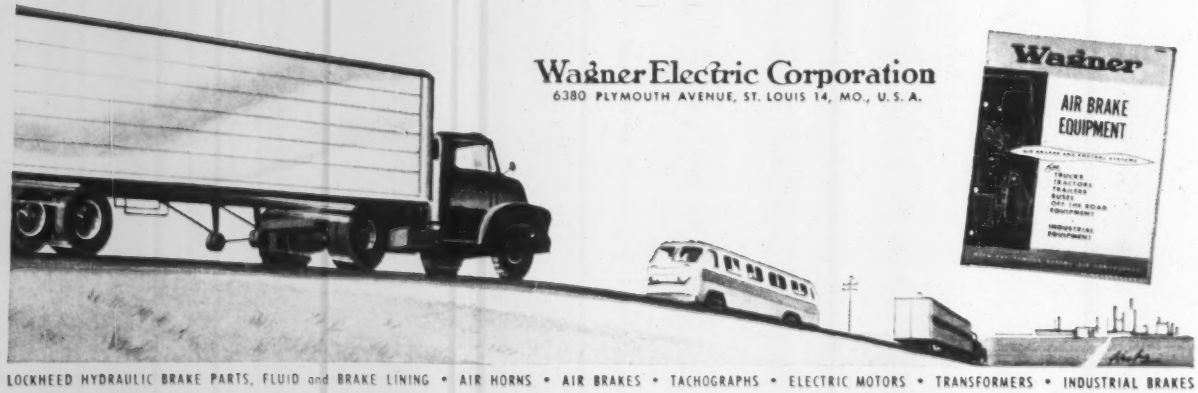
Rotary compression forces all air from the compression chamber. Oil and air are separated and cooled before air is discharged to prevent carbon formation in air lines. All rotating parts are turned by the rotor shaft which is suspended on two bearing surfaces to lower friction loss. Uniform torque load with moderate stresses assures smooth, quiet operation with long belt life even at high compressor speeds.

Field tests and fleet records show that Wagner Rotary Air Compressors help keep air brake maintenance costs down. Their exceptionally long service life and easy, infrequent preventive maintenance adds up to greater economy . . . greater performance . . . greater safety. Available in either 9 C.F.M. capacity, air or water cooled; or 12 C.F.M. capacity, water cooled.

For full information about these compressors and details on complete Wagner Air Brake Systems and Equipment for trucks, trailers, tractors, buses and off-the-road equipment, send for your free copy of Wagner Catalog KU-201.

Remember, when ordering new equipment, be sure to specify Wagner Air Brakes.

WK59-2



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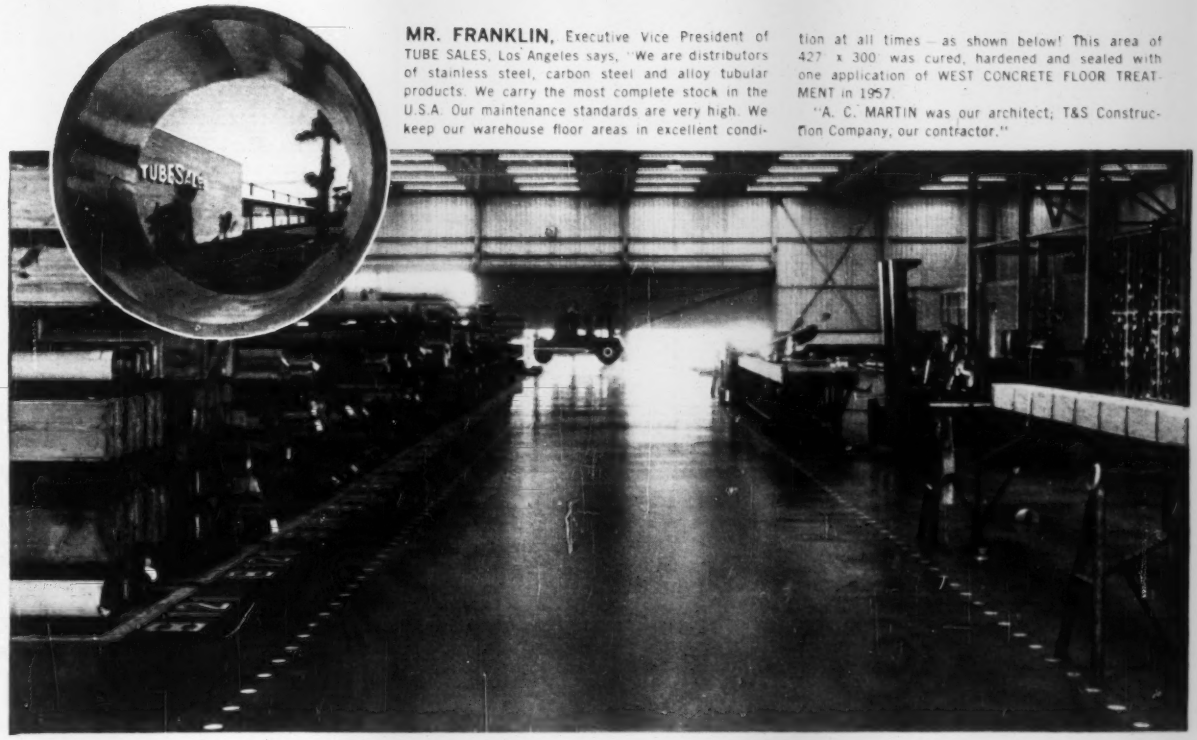

MR. FRANKLIN, Executive Vice President of TUBE SALES, Los Angeles says, "We are distributors of stainless steel, carbon steel and alloy tubular products. We carry the most complete stock in the U.S.A. Our maintenance standards are very high. We keep our warehouse floor areas in excellent condition at all times — as shown below! This area of 427' x 300' was cured, hardened and sealed with one application of WEST CONCRETE FLOOR TREATMENT in 1957.

"A. C. MARTIN was our architect; T&S Construction Company, our contractor."

ONE APPLICATION OF ONE CONCRETE FLOOR TREATMENT

CURES · HARDENS · SEALS CONCRETE SURFACE

WEST Concrete Floor Treatment is a proven time-saving, labor-saving product that 1) Cures 2) Hardens 3) Seals newly-laid concrete surfaces with *one* application. It is a rubber based formulation with a quick drying solvent. Formerly as many as three separate products and applications were needed to obtain the same results.

WEST Concrete Floor Treatment can be applied immediately after horizontal surfaces have been troweled or as soon as the concrete can be walked on. Usually in *one* to *eight* hours. It is applied quickly and easily with a lamb's wool applicator or standard hand pump sprayer. All the labor formerly required for cleaning the concrete surface after delayed concrete drying, and between the use of as many as three separate products and applications is eliminated.

WEST Concrete Floor Treatment is applied immediately after troweling. Its fast drying permits subsequent building operations to be speeded. It also dustproofs as it seals. This speeds the final cleaning. All foreign matter is easily flushed off the surface.

WEST Concrete Floor Treatment enables newly-laid, wet concrete to retain 95% of its moisture. This permits it to cure and harden while sealing the surface against acids, oils, greases and other foreign matter. This incongruous aspect of holding back most of the moisture while permitting some moisture to escape slowly is the key to this product's amazing success.

WEST Concrete Floor Treatment is colorless and will not alter the color of the poured mix. It goes on evenly and spreads quickly without streaks. One gallon covers from 300-350 sq. ft.

WEST Concrete Floor Treatment is fully attested, fully proven across the United States and Canada. Full details and samples are available immediately from any of WEST's 400 specially trained representatives from coast to coast. Write, phone or wire your nearest WEST office.

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WEST CHEMICAL PRODUCTS INC.

WEST CHEMICAL PRODUCTS INC.
42-16 West Street, Long Island City 1, N. Y.

Cincinnati's Third Street Distributor—a modern limited access expressway—is planned to carry traffic around the busy downtown area. This office window view of the project shows the pile driving rig of C. L. Guild Construction Company, Inc., driving some of the more than 100,000 feet of Armco Pipe Piling to be used on the job.

Highway-Proved Armco Products

Help CITIES Solve Traffic Problems

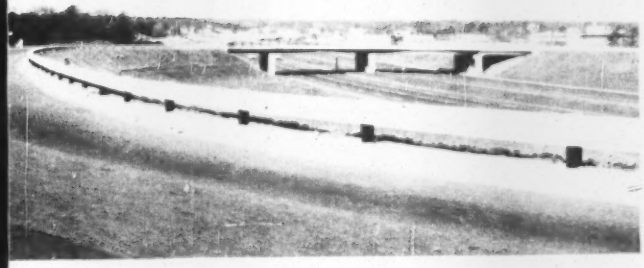
Expressways are moving downtown! Cities are solving their traffic problems by sending traffic over, under, through and around congested areas on limited access expressways. And many of them are finding durable highway-proved Armco Drainage and Construction Products give them a better way to build.

In Cincinnati, Chicago, Atlanta, Cleveland, and New Orleans, for example, Armco Foundation Pipe was selected for foundations of bridge piers and abutments. The wide size range, simplicity of splicing, and availability of long lengths are only a few of the reasons why engineers and contractors select Armco Foundation Pipe.

Restricted right-of-way, coupled with the need for slope control, presented a problem that was solved by Armco Bin-Type Retaining Walls in Boston, Kansas City and Pittsburgh. All-steel bolted construction of Armco Walls eliminates the threat of cracking or breaking under load. Slope stability is assured.

On Detroit, Chicago, Boston, Dallas and many other expressways strong, safe, easy-to-install Armco FLEX-BEAM Guardrail protects both motorists and property.

Country-wide, you'll find the whole family of Armco Construction products doing important jobs on expressways: Dependable Armco Drainage Structures, featuring the flexible strength of corrugated metal, are a consistent choice for these downtown traffic expediters. You'll find, too, Armco Bridge Plank, Water Control Gates, Steel Sheeting doing key jobs. Want complete product data? Write us, outlining your construction project or problem. Armco Drainage & Metal Products, Inc., 5933 Curtis Street, Middletown, Ohio. In Canada: write Guelph, Ontario.



Boston Circumferential Highway (Route 128) approach has protection of FLEX-BEAM Guardrail. Total project required thousands of feet of this rugged rail.

Armco Bin-Type Retaining Wall will hold fill for new expressway . . . keep it from encroaching on nearby railroad right-of-way. Interconnected bins are filled with earth before backfilling.

ARMCO DRAINAGE & METAL PRODUCTS

Subsidiary of ARMCO STEEL CORPORATION

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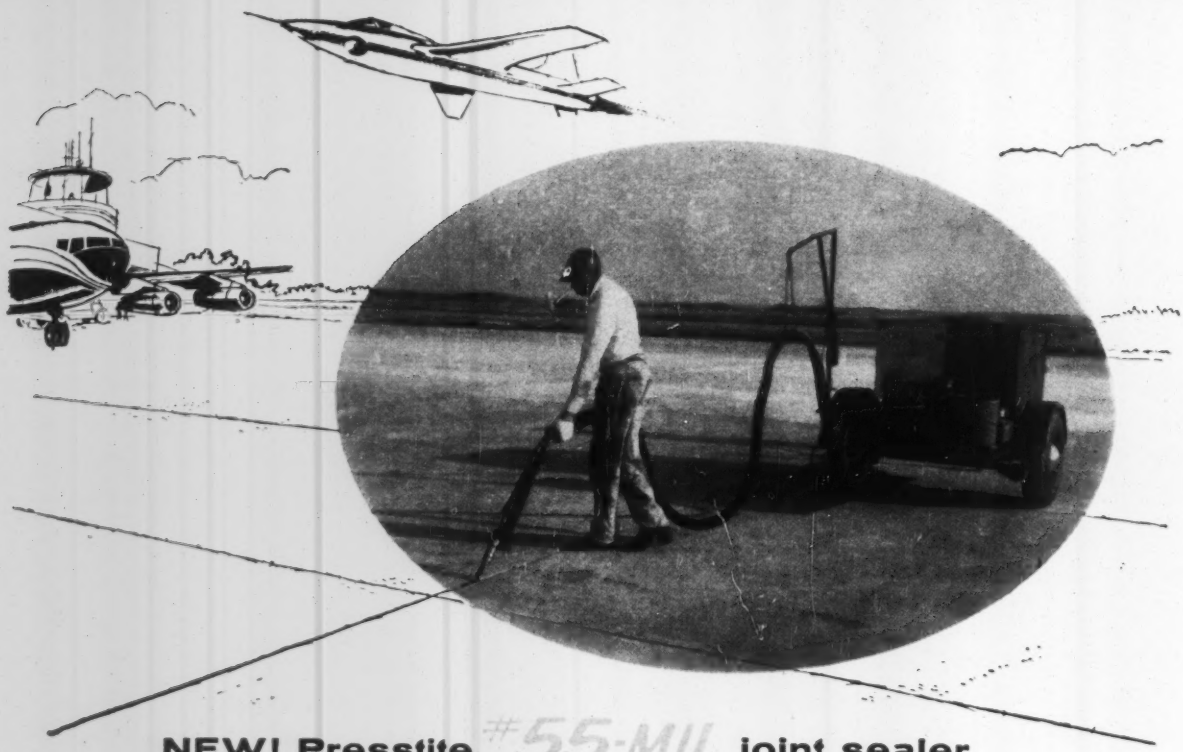

NEW! Presstite #55-MIL joint sealer resists jet blast, heat, fuel and oil... cures quickly...will not track

Here is the strongest, toughest, most economical sealant of its kind on the market today . . . *laboratory tested and field-service proved!* Presstite No. 55-MIL Sealer is a Polysulfide Polymer, two-component, cold-applied sealing compound, specifically designed for sealing joints in Portland Cement Concrete, military and commercial airfield paving, exposed to the action and operational requirements of jet aircraft.

1. **Resists repeated blast** from high jet turbine thrust.
2. **Resists super-elevated temperatures** of after-burner "cut-in".
3. **Resists impregnation** by foreign materials.
4. **Resists action of jet fuels:** JP-3, JP-4, JP-5; "SKYDROL" (fire-resistant hydraulic fluid); also detergents and oils.
5. **Resists action of repeated freeze-thaw cycles,** will not crystallize at sub-zero temperatures.
6. **Maximum adhesion** to clean concrete surfaces.
7. **High cohesive strength.**
8. **High ductility,** remains ductile at *minus* 20°F.
9. **Fast curing,** sets up tack and is track-free within 60 minutes after application.

For a joint sealant that will *last*—specify Presstite No. 55-MIL Sealer *first*—get tomorrow's sealer today!

Note: A modification of No. 55-MIL is available for sealing joints in RCC highways, bridge decks, parking lots and industrial floors. Known as Presstite No. 55-HWY (Highway Type). Your inquiry is invited. Write Dept. C-2.

PRESSTITE Sealing Compounds

PRESSTITE-KEYSTONE ENGINEERING PRODUCTS COMPANY

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. . . Reader Comment

Taxes and the Road Fund

In our report of the American Association of State Highway Officials meeting (ENR Dec. 11, 1958, p. 21) it was stated that AASHO president Claude R. McMillan "suggested special taxes on tires, trucks and buses" to build up the Highway Trust Fund. This would seem to imply that Mr. McMillan was suggesting new and additional excise taxes on tires, trucks and buses, which is incorrect. His suggestion was merely to put into the fund all of such special excise taxes now being collected. At present only a portion of such taxes are applied to the highway fund.

The general theme of Mr. McMillan's address was that the fund could be made adequate if Congress would apply to it all of the special excise taxes now collected. He was against a rise in the federal gas tax, saying that "motor vehicle owners, as a class, are now paying more than their share of the taxes."

For Your Calendar . . .

Highway Research Board, Sheraton-Park, Washington, D. C., Jan. 5-9.

National Concrete Masonry Association, 1959 convention and biennial Concrete Industries Exposition, Public Auditorium, Cleveland, Ohio, Jan. 12-15.

Building Research Institute, "Noise Control in Buildings," New Yorker Hotel, New York City, Jan. 14-15.

Canadian Construction Association, Queen Elizabeth, Montreal, Canada, Jan. 18-22.

National Association of Home Builders, Hotel Conrad Hilton, Sherman Hotel and Chicago Coliseum, Chicago, Ill., Jan. 18-22.

American Road Builders Association, Materials and Services Division, Dallas Memorial Auditorium, Dallas, Texas, Jan. 19-22.

Associated General Contractors of America, Inc., Hotel Americana, Miami Beach, Fla., Jan. 19-23.

Associated Equipment Distributors, Hotel Conrad Hilton, Chicago, Ill., Jan. 25-29.

Association of Asphalt Paving Technologists, Brown Palace, Denver, Colo., Jan. 26-28.

American Society of Heating and Air Conditioning Engineers, Convention Hall, Philadelphia, Pa., Jan. 26-29.

National Crushed Stone Association, Americana Hotel, Miami Beach, Fla., Jan. 26-30.

National Plant Maintenance and Engineering Conference, Public Auditorium, Cleveland, Ohio, Jan. 26-28.

Society of Plastics Engineers, 15th annual technical conference, Hotel Commodore, New York City, Jan. 27-29.

National Bituminous Concrete Association, 11th annual meeting, Americana Hotel, Miami Beach, Fla., Feb. 2-6.

American Society of Civil Engineers, Hotel Statler, Los Angeles, Calif., Feb. 8-13.

Mason Contractors Association of America, ninth annual convention and 1959 show, Chase-Park Plaza Hotels, St. Louis, Mo., Feb. 15-18.

National Ready Mixed Concrete Association, Roosevelt Hotel, New Orleans, La., Feb. 15-19.

American Concrete Institute, Statler Hilton Hotel, Los Angeles, Calif., Feb. 23-26.

National Council for Stream Improvement, Waldorf-Astoria, Astor Gallery, New York City, Feb. 23-27.

Second Annual Building Congress on Urban Renewal, National Housing Center, Washington, D. C., Feb. 26.

32nd Highway Engineering Conference, University of Colorado, Boulder, Colo., Mar. 5-6.

American Society for Public Administration, Statler-Hilton, Washington, D. C., Mar. 16-18.

When you buy equipment that must earn money, it pays to buy the best. That is why thousands of the famous Model HO "PAYLOADER" tractor-shovels were purchased and why this new, improved Model H-90 will prove even more popular.

Full 9,000 lb. Carry Capacity

The Model H-90 has more Carry Capacity than comparable machines weighing as much as 3,000 lbs. more. Its Lifting Capacity is 15,000 lbs., but its *Carry Capacity* is 9,000 lbs., which means that you can use buckets up to 4 cu. yd. (SAE Rating) depending on the weights of materials to be handled. A breakout force of 21,000 lbs. — almost the weight of the machine — can be applied to the bucket cutting edge.

Choice of Four Engines

You have a choice of four heavy-duty engines: a 125 hp Hercules or 134 hp I-H for gasoline; 122 hp Cummins or 126 hp GM Diesels.

Easy Operation, Long Life

Power-shift transmission with 3 speeds forward *and* reverse, torque-converter, twin-cylinder power-steer and 4-wheel power brakes assure fast, easy operation all day long. Power-transfer differentials and heavy-duty planetary final-drives provide high traction and axle reliability for all ground conditions. Sealed front wheel brakes prevent scoring and glazing. Large oil-bath air cleaners and cartridge-type oil filters protect the engine, hydraulic oil and transmission-torque converter oil.

More Attachments – More Uses

The widest choice of attachments is available, including these "Payloader" exclusives: Drott 4-in-1 Bucket, Superior Sideboom, Galion Vibratory Compactor, Ram Black-top Spreader.

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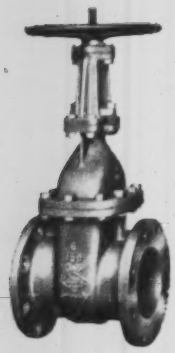


In this **Split Wedge Gate**

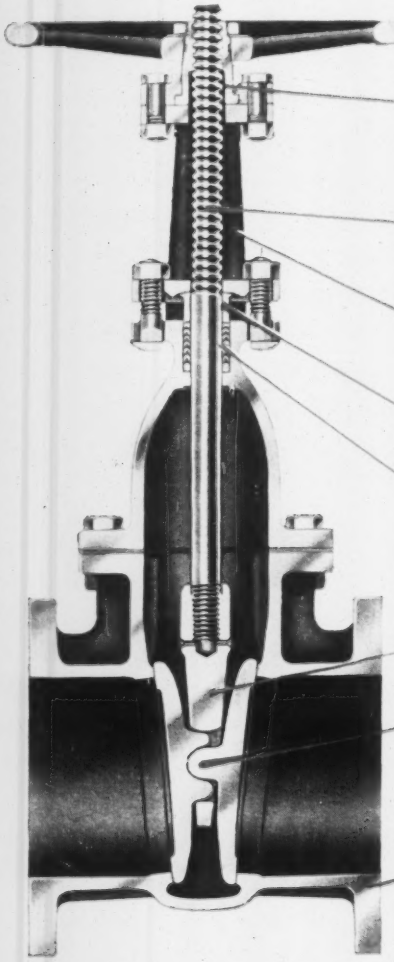
you can see why it pays to

Specify JENKINS for STAINLESS STEEL Valves, too

This picture shows the many points of excellence in the design and construction of Jenkins Fig. 1327 Split Wedge Stainless Steel Gate Valves. Compare them with any valve you know. You'll conclude that it's hard to beat Jenkins at making valves, no matter what the material.

But no picture can show the quality of the castings . . . the precision machining . . . the rigid inspection and testing that have gone into this valve. All of these are as important as design and metal alloys in assuring long, dependable, economical valve service. And, all of them are up to the peak standards for which Jenkins has been known for almost a century.

SEND FOR NEW CATALOG of Jenkins Stainless Steel Valves. You'll find in it the patterns you want, in a choice of alloys that satisfy the requirements of practically all corrosive services. Also, you'll see that these Jenkins valves meet valve industry specifications and the high standards established by the leading users of stainless steel valves. Jenkins Bros., 100 Park Avenue, New York 17.



WHEEL of high strength malleable iron designed for firm grip and easy operation.

YOKE BUSHING, easily renewable. Made of bronze, for ideal thread engagement with stainless steel spindle, to prevent seizing or galling of spindle threads. Bushing of stainless steel is optional.

SPINDLE has long thread bearing surfaces with correct lead for easy, tight closing. Screws into wedge carrier, then secured by a stainless steel pin.

YOKE BONNET has liberal space between yoke arms for easy access to packing box. Precision machined flange face assures uniform contact with gasket for a tight body-bonnet joint.

GLAND consists of two pieces — gland flange and gland follower — eliminates binding of follower in case gland bolts are tightened unevenly.

PACKING of Chevron-type Teflon in large packing box prevents leakage. Only a minimum load is required on gland, extending service life of packing.

WEDGE CARRIER connects wedge to spindle and raises or lowers it. Husky in size to stand any operating strains.

SPLIT WEDGE is the ball-and-socket design which automatically adjusts to the tapered seating surfaces for positive shutoff. The discs, revolving freely in the wedge carrier, produce a self-cleaning action on seating surfaces and reduce possibility of galling and seizing.

BODY —Through-port design for full, free flow. Ample wall thickness and good design provide extra strength to withstand stresses. End flanges conform to M.S.S. specs.

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Sold Through Leading Distributors Everywhere

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ENGINEERING NEWS-RECORD

Vol. 162, No. 1 January 5, 1959

Number of copies printed this issue 83,658

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ENGINEERING NEWS-RECORD is a consolidation of Engineering News and Engineering Record, effected in 1917. The Contractor was consolidated with ENGINEERING NEWS-RECORD in 1918. Engineering News was founded in 1874 as The Engineer and Surveyor, which subsequently became The Engineer, Architect and Surveyor, Engineering News and American Railway Journal, and finally, Engineering News. Engineering Record was established in 1877, as the Plumber and Sanitary Engineer. Subsequently it became The Sanitary Engineer, Engineering and Building Record, and, finally, Engineering Record. All rights to the above titles are reserved.

THE CONSTRUCTION WEEK

WHERE THERE'S SMOKE—With memories of the Chicago school fire still fresh, expect pressure from school and local officials for more fire-prevention requirements in older schools. But so far only a handful of 500 cities surveyed by the National Board of Fire Underwriters have incorporated clauses for repair of old structures into their fire codes. In many communities, old buildings are exempt from code enforcement.

BAY AREA AUTHORITY?—California's new legislature will consider a San Francisco Bay area authority patterned after the Port of New York Authority. The plan calls for all ports, bridges and airports to be placed under one agency. Most pressing Bay area needs—freeways and rapid transit—aren't included. The proposal stems from a report by Coverdale & Colpitts, New York City consulting engineers.

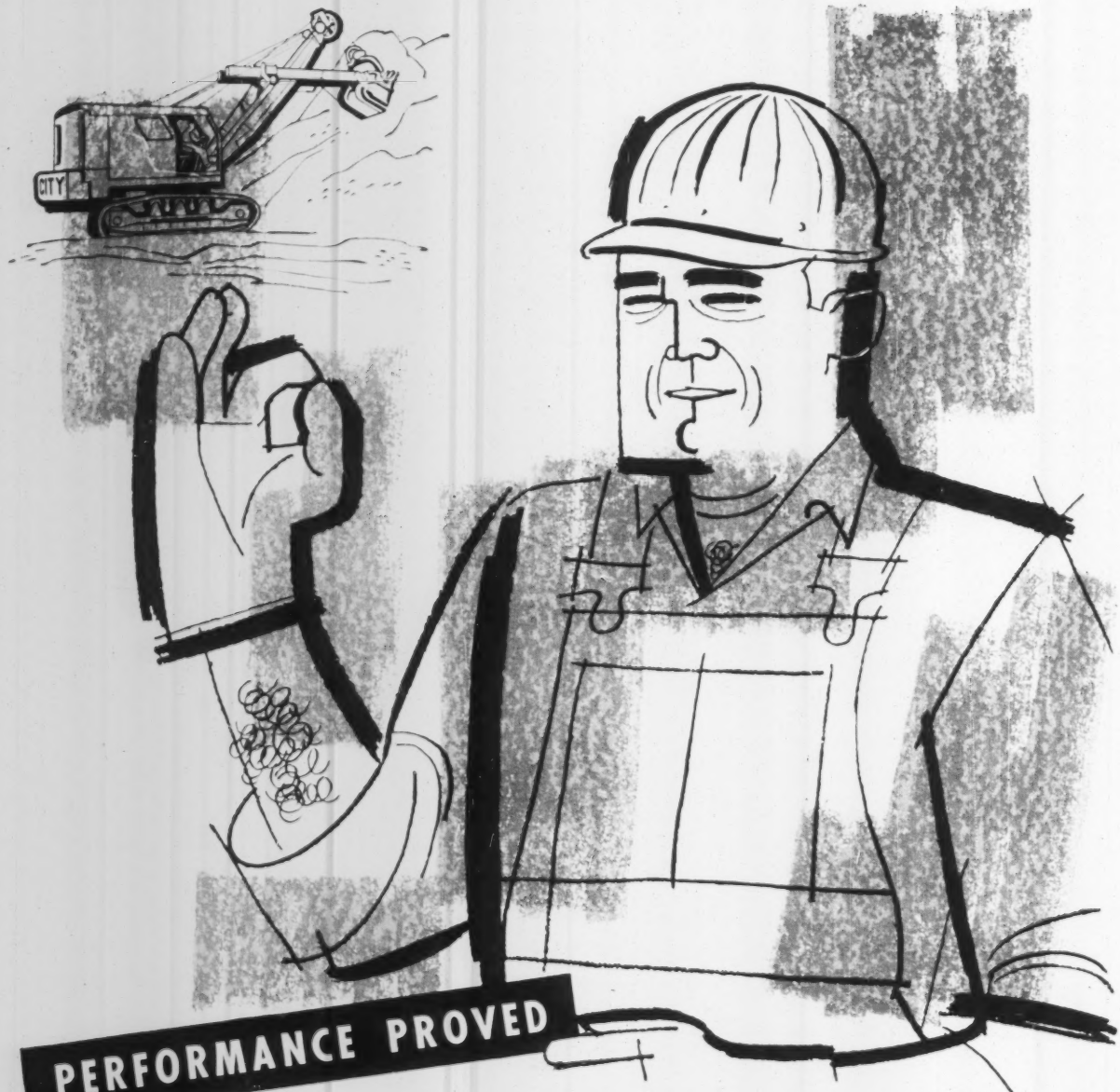
CLOAK-AND-DAGGER CONSULTANT—A Montreal consulting engineer this week revealed himself as an international agent for Cuban rebel leader Fidel Castro. A. R. L. "Andy" McNaughton served as Canadian purchasing agent for deposed President Batista. But after he got the needed materials for Batista, Mr. McNaughton arranged for Castro's rebels to hijack them. Mr. McNaughton is the son of Gen. A. G. L. McNaughton, chairman of the Canadian section of the International Joint Commission on Boundary Water Problems.

NEW CHICAGO SPORTS ARENA?—A $7-million sports stadium is being considered by Chicago officials. It would seat 75,000 and be used by the city's professional football and baseball teams. Chicago's Soldier Field seats 100,000, but it's poorly laid out. The new stadium could be built on land near the city's new lakefront exposition hall.

SEWER MISSING—Failure to record accurately the location of a sewer 86 years ago is causing headaches today in Richmond, Va. The sewer was built in a ravine and subsequently buried under 75 ft of fill. Now an intensive hunt is starting for the lost line. It runs under a site where it might interfere with the deep pile foundations for a new building.

GRAY TO RETIRE?—Richard J. Gray may step down as head of the AFL-CIO Building and Construction Trades Department, according to industry talk. Mentioned as possible successors are John H. Lyons (iron workers), Lloyd Mashburn (lathers) and James McDevitt (AFL-CIO political education director). The 71-year-old Mr. Gray, a bricklayer from Albany, has headed the department since 1946.

man! that BAY CITY has
real rugged machinery!



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BAY CITY

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BAY CITY SHOVELS INC., BAY CITY, MICHIGAN, U.S.A.

WASHINGTON OBSERVER

• Construction spending will be a hot topic as Congress battles with Ike

- **The new Congress came to town this week ready to make a major project out of fighting with President Eisenhower over economy. And construction projects will be right in the middle.**

  The big questions for construction: How much can the President cut out of construction programs that now total billions each year? And how much will Congress put back into the budget?

  At stake: About $11 billion of federal construction money, counting in military, atomic energy, public works, housing, buildings, grants to states for various programs.

  The new Democratic majorities won't favor big increases. But where Mr. Eisenhower will lean toward savings, Congress will want to spend a little more on this or that program.

- **President Eisenhower plans to cut military construction spending to about 10% below this fiscal year's estimated $2 billion.** But military contract awards for the next fiscal year will show an even sharper decline—probably running some 20% below the figures for this year.

  The reductions reflect Administration decisions to allow the air base dispersal program to wind up over the next 18 months, and to keep missile base construction going at about the current rate.

  Congress seems certain to demand acceleration of both these programs; on missile bases, the legislators want more construction of "hardened"—that is, underground—launching sites.

- **There'll be a fight over the President's proposal to increase the federal tax on gasoline to keep highway construction pay-as-you-go.** An increase of 1 or 1½ cents per gal is needed to keep the trust fund up to spending levels planned. Congressmen will complain, but the guessing is they'll have to meet the President's demand.

  There'll be a squabble over federal aid to airports. The Democrats want to increase the present $60-million program—while Mr. Eisenhower wants the whole thing to die.

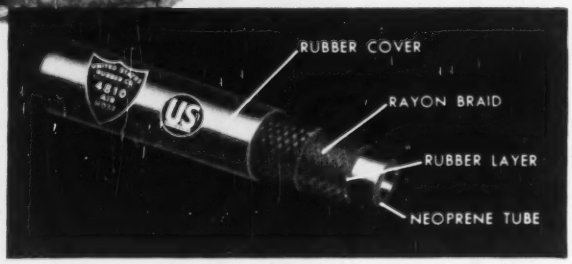
- **The President will hold out against any new Reclamation-Army Engineer water projects**—but there's still no sign he'll block contract awards for the new starts Congress approved last year.

  Next year's construction spending for the two agencies will have to be more than this year's $860 million just to keep current projects going without any slowdown. Of this the Engineers will need more than this year's $646 million, and Reclamation more than its $214 million. The Democrats want to spend more.

- **Housing programs are right in the middle of President Eisenhower's fight over spending.** The biggest issues: Grants to cities for urban renewal programs and proposals to renew Fannie Mae's authority to purchase mortgages with Treasury funds, as provided by last year's anti-recession legislation.

  Sec. Arthur S. Flemming has already said his Health, Education and Welfare Department's construction spending will be higher in fiscal '60—but that new money requests will be less. Involved are waste treatment works, hospitals, medical and dental research facilities.

4810 AIR HOSE



Where men and hose flex their muscles

Here's the hose that's as rugged as the men who use it. On the really tough construction jobs—where tight quarters, abrasive terrain and high working pressures take their toll of ordinary air hose—mandrel-made, wrapped-finish, U.S. 4810 Air Hose stands up to use *and abuse*.

Yet, despite its great strength, 4810 is no muscle-bound hose. "U.S." engineering has made it easier to handle, readily flexible, able to take higher working pressures—*and less expensive*—than the conventional air hose you might be using. It's one of a complete line of U.S. Rubber construction hose.

• • •

When you think of rubber, think of your "U.S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.

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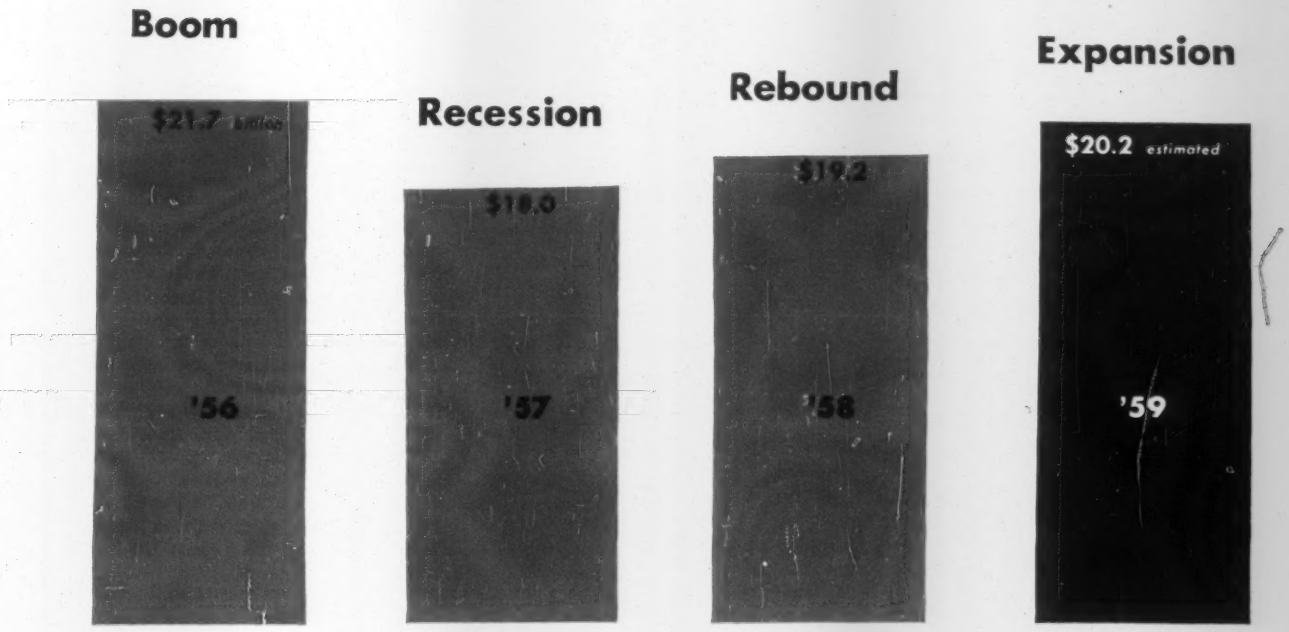


Heavy Construction Outlook:

Biggest Market in Three Years

New business won't rocket into outer space, but heavy construction contract volume in 1959 should top 1958 by 5%. And 1958 was the second best year on record with a contract volume of $19.2 billion—7% better than 1957.

ENR forecasts that heavy construction contracts will hit $20.2 billion this year. This will be short of the $21.7-billion record set in 1956, but it will close much of the gap created by the 18-month awards recession. The predicted 1959 total will represent a 14% gain over 1957 and will shove 1958's volume out of its current second-best position.

This year's outlook remains as indicated in ENR's preliminary forecast (ENR Aug. 7, 1958, p. 21). But there are two important revisions:

• Industrial building is now expected to show a 5% gain over 1958. A 15% drop was forecast in August.

Reason for the change: a strong upturn in proposed industrial plants during the final quarter of 1958, particularly in December. This revival points to a stepped-up rate of industrial building contracts by the second half of this year. Further increases in new proposed industrial projects could push 1959 awards in this category up even more than 5%.

• Private mass housing prospects for the first half of this year appear dim on the basis of the recent interest rate trends (ENR Dec. 11, 1958, p. 111).

New legislation in the spring could pull awards up—that's what happened last year. But if this legislation consists primarily of added funds for the Federal National Mortgage Association (Fannie Mae), the results will be only temporary.

However, should the interest ceilings on government-backed mortgages be removed, mass housing would probably score a gain much greater than the 5% rise now forecast by ENR. In any case, housing appears due for a slow first half. The second half performance will be stronger and an increase in volume for the second consecutive year is almost a certainty.

Last year will be best remembered as the year heavy construction contracts flew out of an 18-month recession, then fluttered down again.

The sharp upturn ran out of steam in late summer. Awards for private and federal work sagged sharply. State and local contracts turned seasonally lower in the late fall, tumbling November's overall volume almost as low as January's and under the low volume of November, 1957.

But December roared back with the highest rate of contract awards reported by ENR since August (see page 108).

• Last year's records—In 1958, contracts for heavy construction other than building topped $8.2 billion, a 15% jump from the previous high established in 1957.

New records were set by highways, up 26%; sewerage, up 11%; earthwork-dams-waterways, up 8%; and public housing, up 64%; (mainly "Capehart" military housing units).

(Continued on page 21)

Forecast: '59 Construction Contracts

In Millions

	1957 Actual	1958 Actual Volume	1958 Actual Chg. '57-'58 %	1959 Forecast Volume	1959 Forecast Chg. '58-'59 %
ALL HEAVY CONSTRUCTION	**$17,986**	**$19,165**	**+ 7**	**$20,150**	**+ 5**
By Ownership					
Private	8,386	7,730	− 8	8,275*	+ 7
Public	9,600	11,435	+19	11,875*	+ 4
State & Municipal	7,415	8,609	+16	9,425	+ 9
Federal	2,185	2,826	+29	2,450*	−13
By Type of Work					
Public					
Waterworks	369	306	−17	450	+47
Sewerage	556	618	+11	650	+ 5
Bridges	772	703	− 9	875	+24
Highways	2,964	3,729	+26	4,000	+ 7
Earthwork, waterways	969	1,045	+ 8	800	−23
Buildings, exc'l housing	2,353	2,610	+11	2,600	0
Housing	642	1,055	+64	900*	−15
Unclassified	975	1,369	+40	1,600	+17
Private					
Mass housing	3,039	3,739	+23	3,850*	+ 3
Commercial	1,757	1,795	+ 2	1,925	+ 7
Industrial	3,081	1,756	−43	1,850*	+ 5
Bridges	9	11	+13	10	− 9
Unclassified	500	429	−14	640	+49

** Revised preliminary forecast (ENR Aug. 7 '58, p21). Official ENR 1959 forecast will be in February 19, 1959 issue.*

Other types of work scored gains over 1957, but failed to establish new highs. They include public buildings other than housing, up 64%; private mass housing, up 23%; commercial building, up 2%; and public "unclassified," up 40% (primarily airports and missile bases).

Only two major types of public works declined in 1958 from their 1957 totals: waterworks, down 17% and bridges, down 9%.

Private industrial building in 1958 dropped 43% below 1957. Private "unclassified" dropped 14%. This group consists mostly of pipelines, electric power and telephone lines.

• This year's records. Contract awards for most major types of heavy construction are expected to rise this year above 1958 totals. New all-time highs are predicted for waterworks, sewerage, bridges and highways.

Substantial increases over 1958 volume should also be scored in private and public "unclassified," and commercial building.

Congressional action on construction legislation could have a big impact on contracts for airports, housing, college facilities, hospitals, schools, atomic reactors, hydro power, flood control and military facilities. Highway legislation, however, will have little effect on highway and bridge contracts.

Construction legislation probably will move slowly in the new Congress. Nearly every program can provoke political fights within Congress and some will open rifts between Congress and the Administration.

The President, who plans to submit a smaller budget for fiscal 1960, may use his veto power more frequently this year than he did in 1958. Congressional leaders will carefully measure the possible inflationary effects of new legislative proposals.

• Backlog story. The backlog of proposed work indicates a plump market-to-be.

Engineers' and architects' drawing boards once again are groaning under an increasing load of new design work. Proposed heavy construction projects entered the planning stage at an accelerating pace late in 1958. The climb followed a sharp drop in the volume of proposals during 1957 and early 1958.

A big spurt in private work and a substantial volume of new public works proposals combined to push the ENR Backlog of Heavy Construction in planning to a record $114.2 billion as of December 31. This is the fourth consecutive monthly increase in the ENR backlog volume.

Particularly significant is the upturn in private work proposed. It was the drop in proposed private work starting in 1956 that brought declines in private contracts of 38% in 1957 and 8% in 1958.

With the total backlog now more than $1 billion above its previous high in March 1958 and nearly $3 billion higher than a year ago, construction men can look for new growth in the heavy construction market.

With so much work in the planning stage, the rate of growth in contract awards this year will depend on several factors:

- Availability and cost of borrowing long-term capital to finance new projects.
- Earnings of industry and its plans to introduce and market new products.
- Employment and income payment trends, which affect confidence of individuals who are potential buyers of new construction or who must vote on new public projects.
- Legislative and fiscal actions of government — state, municipal and federal.

Contractor Makes Clean Sweep

On the basis of construction bidding so far, Washington, D. C.'s, new $100-million international airport might better bear the name of Langentelder, instead of the Virginia crossroads called Chantilly.

C. J. Langentelder & Son Inc., Baltimore, has made a clean $19-million sweep of the three Chantilly contracts put up for bids to date. Last week this fast-paced outfit received formal notice to proceed on the largest and most controversial of the three contracts—a $12.5-million ticket for rigid concrete paving of three mammoth runways.

Asphalt pavement didn't even get a chance to bid for these runways. The consulting engineers for the all-federal airport ruled out flexible construction and restricted the bidding to portland cement concrete 12 and 15 in. thick for 1.2 million sq yd of runways and taxiways. Asphalt construction is limited to 460,000 sq yd of surfaced shoulders, 25 ft in width, bordering both sides of the 150-ft-wide runways.

Exclusion of asphalt from runway competition hit bituminous paving people in the solar plexus. They had just won Air Force acceptance before a House armed services subcommittee, and they were caught off guard by this body blow on a civil airport.

You can be sure the asphalt industry won't ignore the consulting engineers' turndown on Chantilly. The asphalt experts claim several million dollars could have been saved if asphaltic runway construction had been accepted as a competitive alternate for the job.

Government airport officials, now consolidated in the new Federal Avia-

tion Agency under Gen. Elwood R. Quesada, went along with the concrete paving requirement as specified by the consultants, but they didn't agree with the language used by the engineers to support the selection of rigid pavement.

The report of the consultants is now undergoing joint editing before being released to the public next week.

A consulting group headed by Ammann & Whitney, New York City, has a contract of some $3 million for the Chantilly project. Associated with the prime contractor are Burns & McDonnell, Kansas City, Mo., Eero Saarinen, Bloomfield Hills, Mich., and Ellery Husted, Washington, D. C., the master planning consultant.

No engineering arguments can arise over the first two jobs that Langenfelder took. Just four months ago, the firm turned loose the first units of a magnificent spread of heavy earthmoving equipment now at work on the site. The first machines, sized to fit a $470,600 clearing and grubbing contract, were midgets by comparison with the world's largest scraper (one of the 100-cu-yd LeTourneau tractor-scrapers) and other massive earthmovers now operating on the $5.8-million grading contract.

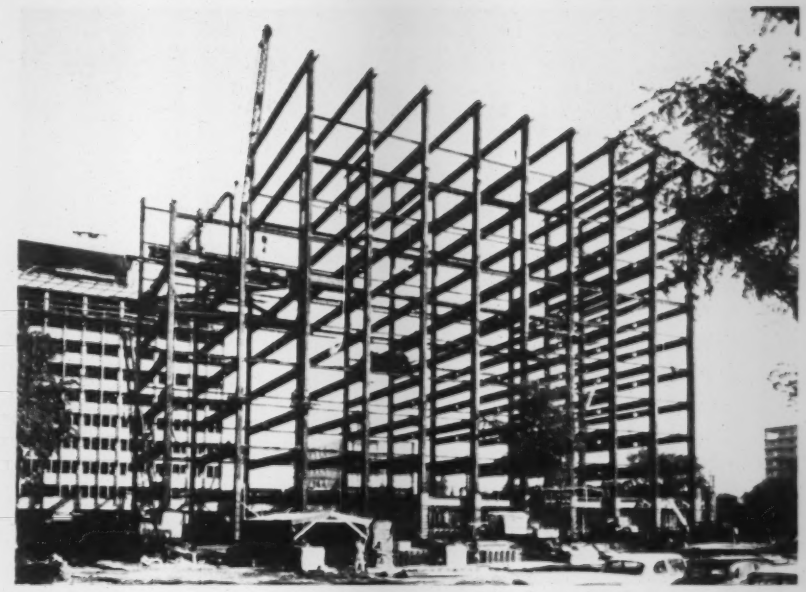
All the contracts aim for completion and operation of the new international jet airfield by early 1961, as called for by both the President and Congress. The airport will have four runways on its 9,400 acres, for a peak capacity of 118 instrument landings and takeoffs per hour.

Congress came through quickly with $62.5 million to start dirt flying as soon as General Quesada, then functioning as aviation adviser to President Eisenhower, settled a seven-year controversy over the airport site. He picked Chantilly, 25 miles west of the White House, in preference to other hot competitors in Virginia and Maryland, including the Burke, Va., site where land had already been purchased for this very purpose.

Now Virginia communities and highway officials are tangling with Washington bureaucracy over the location of expressways to serve the chosen site. Highway construction has to start promptly, or existing routes will be swamped with traffic in 1961.

There was a strong list of bidders for the three Chantilly jobs. Langenfelder underbid 11 other firms for the concrete paving contract. Winning bid was 5½% under the second low bid.

Langenfelder won by a hair on the grading contract, with a bid of $5,847,645. Nello L. Teer Co., Durham, N. C., was second low bidder at $5,860,213. Eleven others bid the job. There were 14 bidders for the clearing and grubbing contract.



Why did this steel frame topple?

Report Blames Wind for Failure

High winds triggered the September 6 collapse of the 11-story steel frame of the building being erected for Union Carbide Canada Ltd., in Toronto (ENR Sept. 11, 1958, p. 27).

That's the conclusion reached in a joint report to the owner by Weiskopf & Pickworth, consulting engineers, New York City, and C. D. Carruthers & Wallace Consultants Ltd., Toronto.

Independent studies conducted for Dominion Bridge Co. Ltd., Toronto, the steel erector, and for Firemen's Mutual Insurance Co., Toronto, corroborated this finding.

The report, released by Union Carbide Canada Ltd., states that "during erection, temporary bracing sufficient to withstand all foreseeable stresses was essential. Although temporary bracing was installed by the steel erector, it was insufficient to withstand the force of wind at a crucial stage in the building's erection."

The steel erection procedure developed for reconstruction by Dominion Bridge calls for deep horizontal trusses between each column at each floor level. Use of this bracing will not change the building as designed by the architect. A delay of up to six months is expected; occupancy now is anticipated in the spring of 1960.

The report points out that the design prepared by Toronto architects Shore & Moffat has been carefully examined and approved by the owner and a number of independent architects and structural engineers. Union Carbide will use the same design on the same site.

A check of the elevations of all foundations shows no settlement has occurred. Quality of reinforced concrete substructure is considered excellent. There are no serious cracks in the walls or supporting members.

Steel used in the building's erection was found to be free of defects. But all members were badly bent and twisted and will be replaced in reconstruction.

The collapse put the welded construction to a severe test. Welding had been completed up to the seventh floor. During the collapse the welded sections were subjected to stresses far greater than any they would be called upon to withstand under normal conditions. Inspection revealed that only one of the several hundred welds had failed.

George Washington Bridge Approach Work Starts

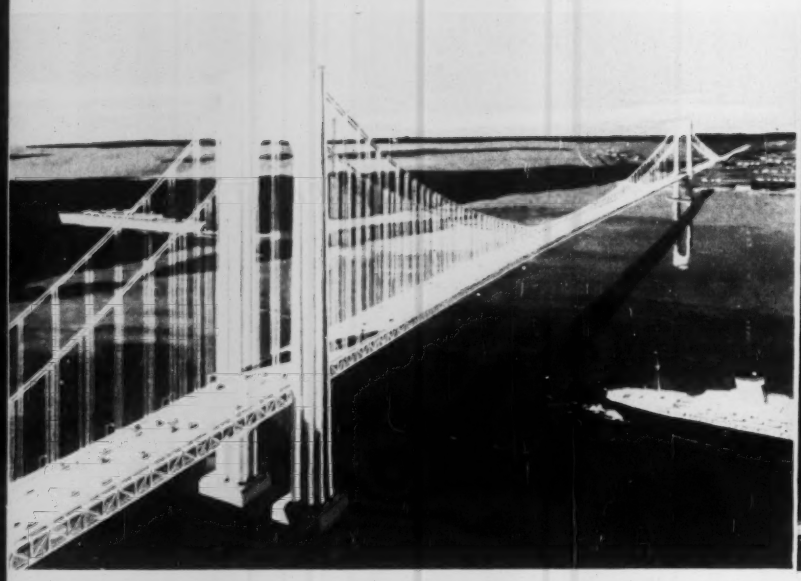
A 12-lane expressway across the upper part of Manhattan was started last month.

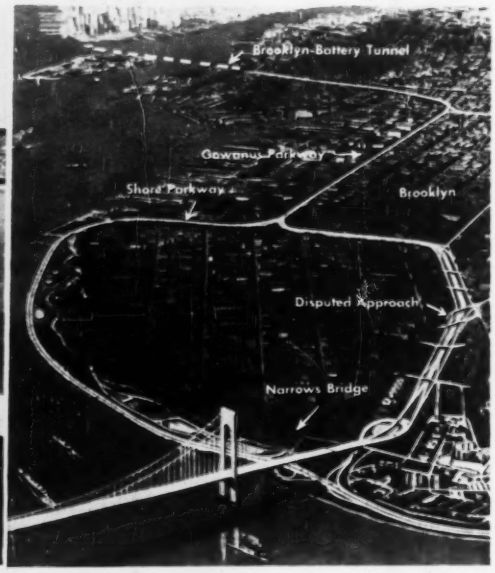
The expressway is part of a program to improve approaches to the George Washington Bridge across the Hudson River. This bridge is now getting a $182-million lower level.

The depressed east-west expressway is to run along 178th and 179th Streets. It will connect with a bridge to be built across the Harlem River on the east side of the island.

A $6.7-million contract for the first two sections of the expressway has been awarded to Brookfield Construction Co., New York City, by the Port of New York Authority.

It Was a Big Week for Bridges . . .





In New York: Narrows Bridge Approach Okayed

It will have the world's longest span, 4,260 ft. It will cost $320 million, including approaches. And its Brooklyn approach—long contested—will be as planned.

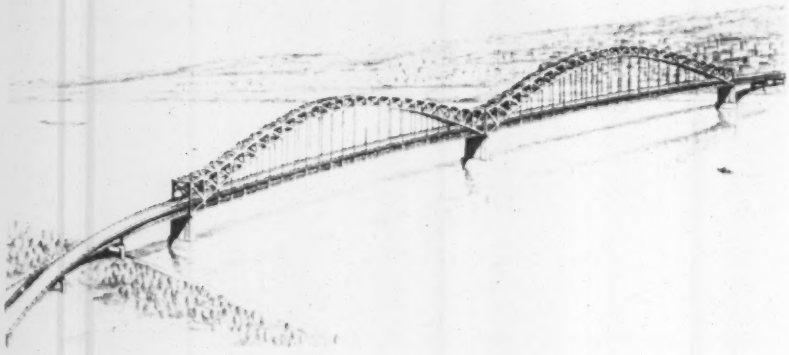
New York's Narrows Bridge has the go-ahead at last. The city's Board of Estimate okayed the $79-million Brooklyn approach plan last week. The Port of New York Authority, which will construct it, immediately said it will "go forward with final details." Ammann & Whitney, of New York City, is the consulting engineer.

The span will beat the world's record of Golden Gate Bridge by 60 ft. Towers rising 700 ft above water level will give the bridge a 228-ft vertical channel clearance at mid-span.

Two roadways each will carry six lanes of traffic; the upper roadway will be built later, when needed.

The Narrows is the busy entrance to New York's Upper Bay and the Port of New York. The bridge will be another major New York City exit to the south. It will also be the only highway connection from New York to sparsely populated, ferry-served Staten Island.

The approach will have 12 lanes north-south along Seventh Ave. Six lanes will swing west on an elevated extension of Gowanus Parkway. And Gowanus Parkway north to the Brooklyn-Battery Tunnel will be widened from four to six lanes.



Over the Ohio: Twin Arches

Design plans for an $11-million bridge across the Ohio River from Louisville to New Albany have been announced by the designers, Hazelet & Erdal, Louisville consulting engineers.

The bridge is scheduled for completion in 1961. It will have two decks, each carrying three lanes of traffic in opposite directions.

Both decks will have a 42-ft roadway and an emergency catwalk for pedestrians. From floodwall to floodwall, the bridge will be 3,745 ft long.

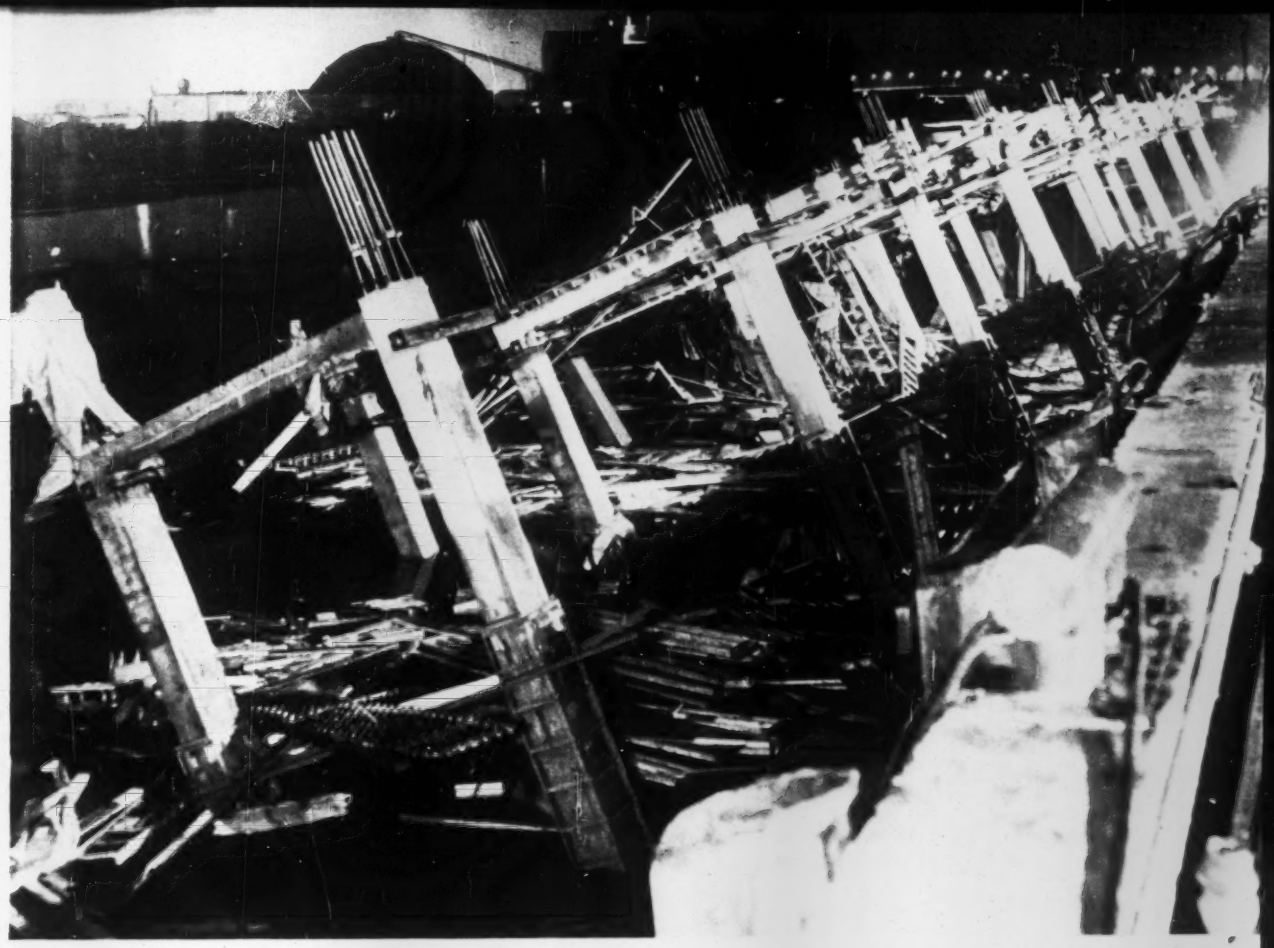
The major part of the structure will consist of twin 800-ft-long tied arches.

Double-decking the bridge will save more than $500,000, says Craig P. Hazelet, senior partner of the firm.

Expensive welding and T-1 steel will be used in the arch ties.

River traffic will have two 780-ft clear channels under the bridge, which will be about 3,000 feet downstream from the existing K&I Bridge—another Kentucky to Indiana crossing. Contracts for construction of piers may be ready by late spring. Mr. Hazelet hopes that all work will be under contract before the end of the year.

Hazelet & Erdal also did the design for a second bridge farther upstream, between Louisville and Jeffersonville.



In Washington: Floating Bridge Pontoons Sink

Two reinforced-concrete pontoons—each 50 x 360 ft—for a floating bridge across Washington State's Hood Canal are now on the bottom of Duwamish Waterway. They sank two weeks ago.

Each pontoon is worth $500,000. One is completely submerged; the other pokes out of the water at a 45 deg angle.

The pontoons sank in the early morning hours. No one saw them go.

Cause and possible damage have not yet been determined. Divers found no holes; and an inspection the week before turned up no leaks in the hull.

The sunken pontoons are two of 21 such needed for the $17.5-million bridge (ENR Aug. 28, 1958, p. 27). They had been tied up side-by-side on the waterway while their superstructures were being put in place. The pontoons, with superstructures mounted on them, were to be towed to the bridge site in early spring.

The outer pontoon—the one that sank completely—was already carrying its 28-ft-wide roadway on supporting concrete columns. Only the columns were on the other (picture).

The builders will have to raise the pontoons to clear the channel for 16 others still to be cast. They hope to seal off the 14-ft-deep pontoons and pump in air.

The pontoons are about the same as some completed earlier. Glenn T. Toy, project engineer for the contractors (Morrison-Knudsen, Henry J. Kaiser, Puget Sound Bridge & Dredging and General Construction), said he had no idea what could have caused the sinkings.

The bridge is being built for the Washington Toll Bridge Authority.

In California: Expansion Plans

A $20.5-million construction program to double the capacity of the San Mateo-Hayward Bridge across the south arm of San Francisco Bay has been proposed by the California Department of Public Works.

The work would increase the 7-mile bridge from two to four lanes by building an adjoining structure paralleling the 6¼-mile-long concrete approach trestles and by double-decking the ¾-mile steel portion of the structure.

The construction can be financed by a $25-million bond issue based on tolls on the bridge and its sister structure, the Dumbarton Bridge, a few miles south, according to a study made by Coverdale and Colpitts, consulting engineers of New York City.

And the revenues would be sufficient to cover an additional $25-million construction program. The second program would cover a 10-year period after the existing concrete trestle had been replaced.

Sale of bonds and start of construction can be authorized by the California Toll Bridge Authority. The report suggests, however, that the authority and the legislature may want to consider other possible means of financing, such as use of revenues from the San Francisco-Oakland Bay Bridge. The authority may ask the legislature to make the final financial decision.

It seems likely the go-ahead will be given during the first six months of 1959. If so, foundation exploration con-

. . . Bay Bridge

tracts could be let around mid-year and construction bids called late in 1959 or early in 1960. With this start, the bridge expansion would be scheduled for completion in 1963.

The San Mateo-Hayward Bridge was opened to traffic in 1929 following construction by private interests. It was acquired by the state in 1951.

Central part of the bridge is a 303-ft-long lift span with minimum clearance of 35 ft and maximum clearance of 135 ft. This is flanked by approach trusses and a series of steel girder approach spans. By some strengthening, this steel section can be double-decked.

All the construction can be accomplished without blocking traffic on the existing bridge.

• **Why this plan?** State engineers investigated six different plans, including a complete parallel structure. But the plan recommended is the most economical.

It has these other advantages:

After new construction has been completed, the existing trestle can be replaced during winter months when traffic flow is low.

Traffic can be diverted to the new trestle in sections over a 10-year period.

The existing structure was designed for H-15 truck loading. Present standards call for H-20 loading. And, although examinations have shown it to be safe for present day traffic, maintenance costs are high.

The San Mateo-Hayward Bridge has nearly reached full capacity. Vehicle travel over it increased only 0.2% from 1956 to 1957—a period when all other San Francisco Bay area bridges were showing much bigger increases. And its two-lane width has become a definite traffic hazard; there have been serious accidents.

The financial feasibility report indicates that present revenues from two South Bay bridges can easily meet all costs.

Corps Awards Contract On $9 Million Hanson Dam

A joint venture of Henry J. Kaiser Co. and Raymond International, Inc., has been awarded a contract by the Corps of Engineers for construction of the Howard A. Hanson Dam on the Green River, in Washington State.

Kaiser, as sponsor, will have prime responsibility for the flood-control project.

The $8.8-million contract calls for a 230-ft-high earthfill dam, with a crest length of 730 ft; a 19-ft-dia, concrete-lined tunnel, 900 ft long; and a 337-ft-long, four-span, outlet-works bridge.

Completion is planned for 1962.

Sewage Ponds Getting Popular

The advantages of waste stabilization ponds are proving an almost irresistible lure for small Kansas communities.

Delegates to the University of Kansas Sanitary Engineering Conference this week heard Dwight F. Metzler, director, and Russell L. Culp, chief engineer, both of the Kansas State Health Department, describe the burgeoning use of waste stabilization ponds in the state.

Since the first pond was installed at Frankfort in 1956, 13 more have been put into operation in Kansas.

Smaller communities, with systems serving 1,200 to 2,500 persons, are attracted by the low initial costs, low maintenance and ease of operation, compared to conventional systems.

The endorsement of waste stabilizing ponds by the Health Department of North and South Dakota, and the public's quick acceptance of them have also helped push this type of treatment.

All waste stabilization ponds in Kansas are designed with multiple cells. The series arrangement is beneficial along streams needing high removals of algae, biochemical oxygen demand (BOD) or coliform organisms. The multiple cells give the system better control over seasonal or light loadings, high evaporation or seepage losses.

Kansas recommends a maximum loading for domestic wastes of 40 lb of total first-stage BOD per acre per day. However, actual loadings vary from 24 to 75 lb. The 1958 cost-per-pound of total first stage BOD varied for 13 projects between $93 and $439, with an average of $171. On a per capita basis, average cost was $42.80.

Their low costs and lack of objectionable features have helped bring general public acceptance for waste stabilizing ponds. Kansas has not had a case of a pond turning anaerobic (losing its oxygen) when loaded within the recommended limits. In a few instances of overloading, pond recovery from septic conditions has been speeded by reducing depth to less than two feet.

In protecting public health, the waste stabilization ponds compare favorably, it was reported, with conventional methods of sewage treatment. The ponds give prolonged storage to the waste, usually 20 to 90 days. Substantial reduction of coliform organisms, particularly pathogenic bacteria, has been found to occur through this storage.

The daily dilution of raw wastes on the order of 20:1 to 90:1 eliminates the exposure of full strength raw sewage to the atmosphere and reduces the contact opportunities for insects and other carriers.

NLRB Wants to Oust Counsel

The National Labor Relations Board is attempting to ease its general counsel, Jerome D. Fenton, out of office. Mr. Fenton is the man largely responsible for the present mandatory and troublesome clean-up of construction industry hiring practices.

The five board members, headed by Chairman Boyd Leedom, have complained to the White House about Mr. Fenton. They say they have had a running dispute with him over nearly everything except the actual handling of labor cases. They suggest he be relieved.

The fuzzy lines of authority between the board members and the general counsel, as spelled out in the Taft-Hartley Act, are said to be the basis of the conflict, which centers on personnel and fiscal matters.

The counsel's office is filled by Presidential appointment subject to Senate confirmation. It is independent of the board itself. The counsel controls and issues unfair labor practice complaints and prosecutes them before the board.

It is through his control over complaints that Mr. Fenton can regulate the impact of the Brown-Olds remedy on closed shop practices in the construction industry. He also enforces NLRB decisions and issues opinions.

The board, on the other hand, has jurisdiction over representation elections, decides which cases are worth its attention and makes decisions like a court. The counsel and the board, however, share both office space and staff at the national and regional levels.

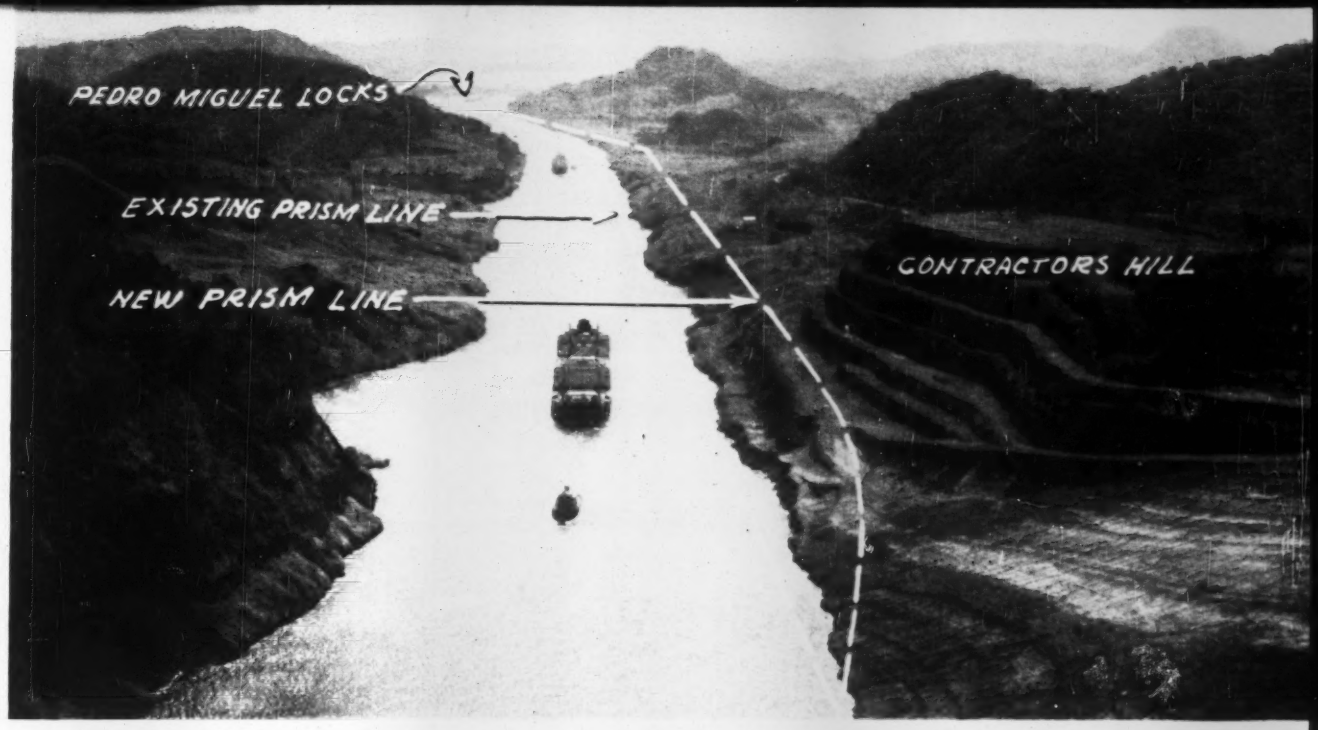
The present fight is not the first at the NLRB. During President Truman's administration, board members forced the resignation of General Counsel Robert H. Denham. That feud, however, concerned policy matters.

Utility Asks California To Okay Geothermal Plant

Pacific Gas & Electric Co. has asked the California Public Utilities Commission for permission to build a geothermal steam-electric generating plant at the geysers in Sonoma County.

The applicant hopes to implement plans announced last July to harness the earth's natural steam for power production (ENR July 31, p. 17).

The Sonoma County plant would be the first of its type in North America as well as the world's first privately financed geothermal plant.



A section of the Gaillard Cut will be widened 200 ft in one of two . . .

Big Panama Canal Jobs Coming

January 28 is the date set by the Panama Canal Co. for opening bids for the largest single earthmoving job undertaken on the canal in 25 years.

Involved is the widening of a two-mile section of the famous Gaillard Cut from 300 ft to 500 ft, and a 5- to 8-ft deepening of the widened part to provide a channel 50 ft deep. A conference for prospective bidders was held in Balboa Heights this week.

It is estimated that 6.2 million cu yd of material will have to be removed, 5 million by land operations and 1.2 million by dredging. The dredging will be done by the Panama Canal Co.'s 13½ cu yd dipper dredge, the "U. S. Cascadas," but this work will be preceded by a large drilling and blasting contract requiring an estimated 800,000 lineal ft of holes and 1.5 million lb of dynamite.

The material to be removed is a basaltic agglomerate overlying a tricky shale formation known as Cucuracha.

The widening job is located at the south (Pacific) end of Gaillard Cut. It encompasses Contractor's Hill, whose top had to be removed in a 3-million cu yd excavation job in 1955 when a dangerous crack threatened a slide that could have blocked the canal (ENR July 7, 1955, p. 36). As the picture shows, the hill was cut back in steps, and some of the canal banks now to be widened will be given the same treatment.

When the widening is completed, almost half the 7-mile length of the cut will have a 500-ft channel, greatly reducing the danger of ship collisions and increasing the capacity of the canal. The widened canal will also reduce surges of water in the cut caused by operation of nearby Pedro Miguel Lock.

. . . High-Level Bridge Bid Dates Set

Ground-breaking ceremonies and award of the first contract (a 374,000-cu-yd earthfill for the west approach) marked the start of work late last month on the first high-level bridge to be built across the Panama Canal.

The $23-million project will provide much-needed relief from the delays and congestion caused by the low-level movable bridges at the Gatun locks (Atlantic side) and Mira Flores locks, (Pacific side) and the ferry at Balboa (Pacific side).

The bidding schedule for the remainder of the job was also announced at the ground breaking.

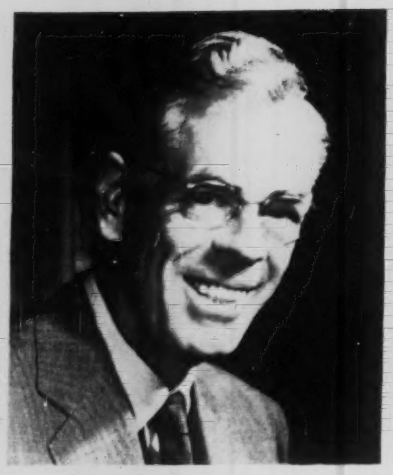
The contract for the more complicated east approach will be awarded in February. In April, the main substructure contract will be advertised, followed by a pre-bidding conference on this work in May. The superstructure contract will be advertised in August. The advertising period for these last two contracts will run between two and three months.

The new bridge will cross the route now used by the Balboa ferry. It will provide a 34-ft roadway for the heavy traffic from Balboa and nearby Panama City to the west side of the canal. About 8,200 vehicles cross on the ferry and at the Miraflores Bridge every day. It is estimated that this traffic will increase about 2% a year.

Traffic will be even heavier when the Inter-American Highway, which will cross the bridge, is completed.

With its approach fills, the new bridge project will be about two miles long. The bridge structure itself extends for over a mile. It consists of deck truss approaches leading up to a 1,128-ft through-cantilever main span over the canal. Of arched outline, this main span is somewhat unusual in that the central suspended section, 800 ft long, is designed as a tied arch.

The bridge was designed by Sverdrup & Parcel, consulting engineers, St. Louis, Mo. The project will be carried out under the direction of Maj. Gen. W. E. Potter, Governor of the Canal Zone, while Lt. Col. Robert D. Brown, Jr., director of Panama Canal Co.'s engineering and construction bureau, will be in direct charge of the project. It is to be completed in 1962.



L. E. Dixon

John MacLeod

Beavers Honor Industry Men

Eight construction industry leaders will be honored by the Beavers, West Coast organization of heavy construction men, at the annual awards dinner in Los Angeles next week.

Heading the list are L. E. Dixon and John MacLeod, both of whom head their own construction firms. Construction supervisors honored are H. E. Carleton and Oscar McCormick. From the engineering category come Charles P. Dunn and Gen. L. J. Sverdrup. The supply award goes to James L. Lovell. And this year's special award goes to Adm. Ben Morcell.

The L. E. Dixon Co., San Gabriel, Calif., has constructed many of the Far West's most spectacular projects. It is currently building Rocky Reach Dam in Washington and the Los Angeles Coliseum sports arena.

John MacLeod, a past president of Associated General Contractors, heads Macco Corp., which he organized some 50 years ago to serve the Southern California oil fields. Current work ranges from pipelines to highways to dredging to trucking.

H. E. Carleton has built many tunnels in the U.S. In recent years he has served as vice president of Coker Construction Co.

Oscar S. McCormick has been with Al Johnson Construction Co. for nearly 50 years. His projects include Possum Kingdom Dam in Texas, Fort Gibson Dam in Oklahoma and Burlington Ordnance Plant in Iowa.

C. P. Dunn just retired from Morrison-Knudsen where most of his work was in engineering. He has been president of an important M-K subsidiary, International Engineering Co. Inc. He was construction engineer on the San Francisco-Oakland Bay Bridge piers.

Gen. L. J. Sverdrup has been a partner in the consulting engineering firm of Sverdrup & Parcel, St. Louis, for 30 years. In the Corps of Engineers during World War II, he supervised construction in much of the South Pacific area (see cover story ENR Apr. 4, 1957).

James L. Lovell, one of the founders of the Beavers, served western contractors for many years as representative of the explosives department of DuPont.

Adm. Ben Morcell headed the Navy's Bureau of Yards and Docks during World War II. More recently he has been president and later board chairman of Jones & Laughlin Steel Corp. He was a member of the second Hoover Commission.

Salt Water Plant

To try conversion by new direct-freezing process

Conversion of saline water to fresh water through a direct-freeze process will be studied in a pilot plant to be built by Carrier Corp. in Syracuse, N. Y.

The plant is designed to produce 15,000 gpd of fresh water. It will be financed by a $150,000 contract awarded Carrier by the U. S. Department of the Interior.

The design is based on lab research and development done by Carrier under a previous contract with the Interior Department.

Here's how the new direct-freeze process works: Evaporation of a small portion of salt water in a partial vacuum removes sufficient heat at a low temperature to cause the remaining water to freeze to a slush. The mixture of pure ice crystals surrounded by brine is pumped to a flotation separation chamber.

The key to the process is Carrier's development of a successful means of washing the ice crystals free of the brine. This had been a stumbling block to previous attempts at conversion by freezing.

The plant is expected to be in operation at Syracuse next summer. If the test is successful, a full size demonstration plant with a capacity of up to 1 mgd may be built on a seacoast site by the Interior's Office of Saline Water. Carrier's is the first freezing process developed under the saline water conversion program to reach this stage.

Around the Country . . .

• Big power budget—Washington Water Power Co. plans a 1959 construction budget of $22.7 million with more than $13.7 million to be spent on Noxon Rapids Dam and related transmission facilities. The project, on the Clark Fork River in Montana, is three-fourths complete.

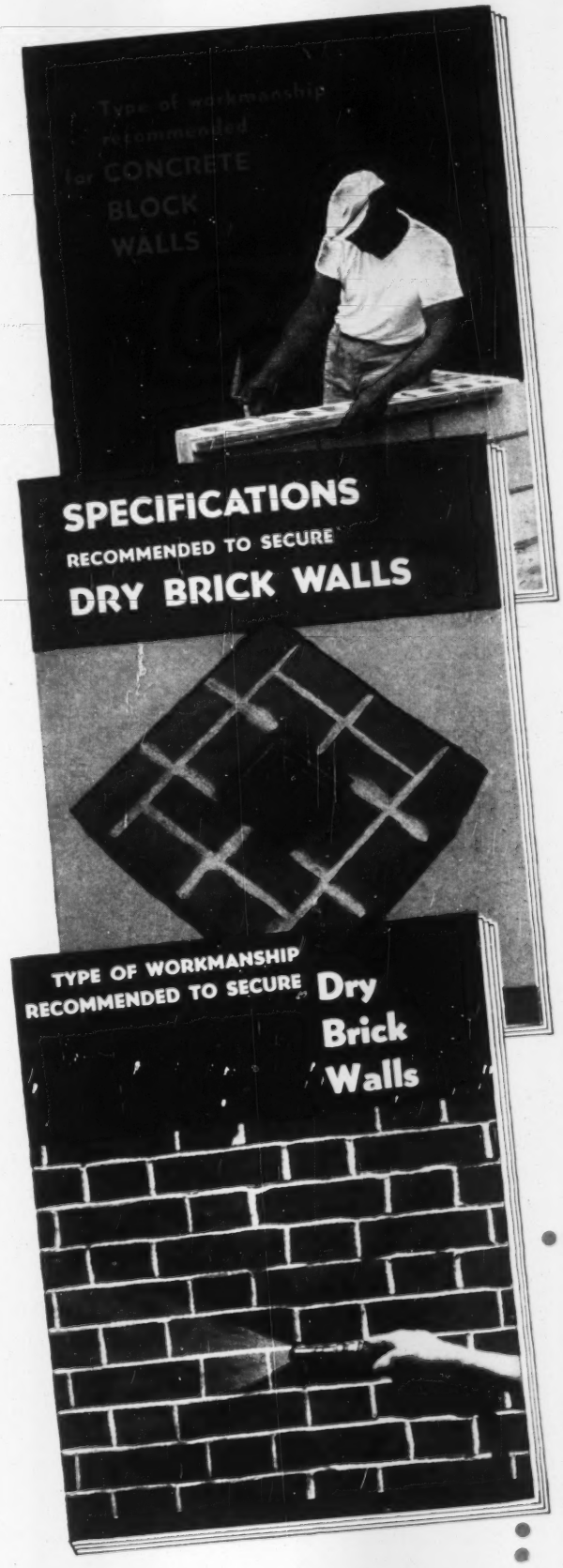
• Sewer start expected—A $30-million sewer bond proposal to finance a 3-year construction program will be put before Detroit voters next month. If approved as expected, work will start in 1961.

• Engineering second—Engineering is the second most popular study of veterans attending college under the Korean G. I. bill, according to a recent Veterans Administration survey. Business administration is first.

• Freeway start—A 34-mile section of Kentucky's Interstate 64 is scheduled to be under construction by early spring. It will be the first completed stretch of a freeway system to connect the cities of Frankfort and Louisville.

• Traffic experts needed—Forty percent of all U. S. cities need qualified traffic engineers, according to a survey reported by the Yale University Bureau of Highway Traffic.

• Alaskan power project—Approval of loans to REA cooperatives has assured start of construction of the $14-million Cooper Lake hydroelectric project near Anchorage, Alaska. Chugach Electric Association will build an earthfill dam, a power tunnel and a 15,000 kw generating plant.



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THE three books at the left are a "must" for anyone who is interested in good masonry construction. One describes the type of *workmanship* recommended to secure dry brick walls. The second describes the *specifications* recommended to secure dry brick walls. The third describes the type of workmanship recommended for *good concrete-block walls.*

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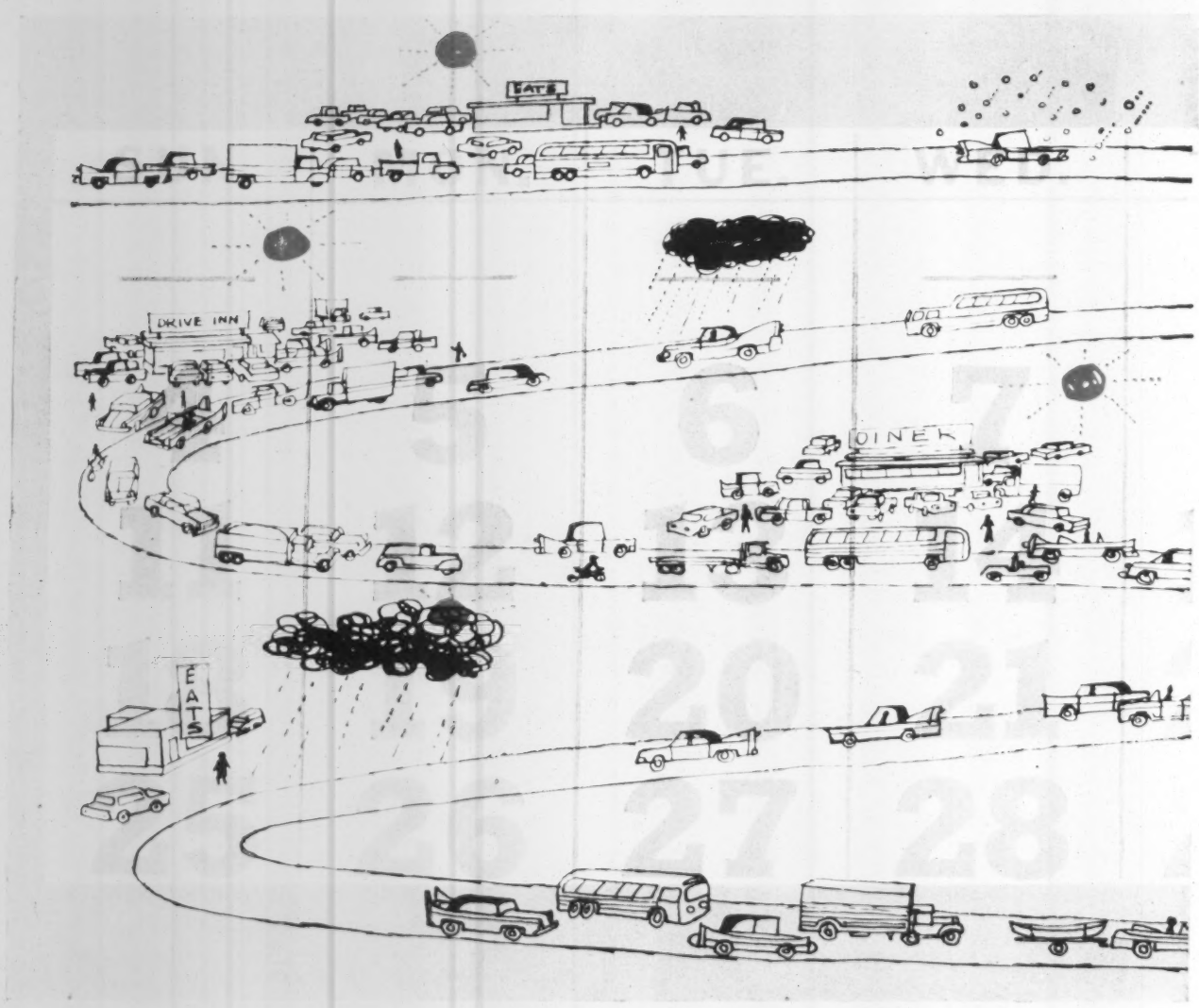


Uneven Traffic Loads Call For

Service areas along America's new toll roads have come a long way from yesterday's roadside stands. Some of the areas function like miniature, self-sufficient towns, with their own water and sewage treatment plants. But it would be a strange town that had to cope with turnpike-type sewage flow variations.

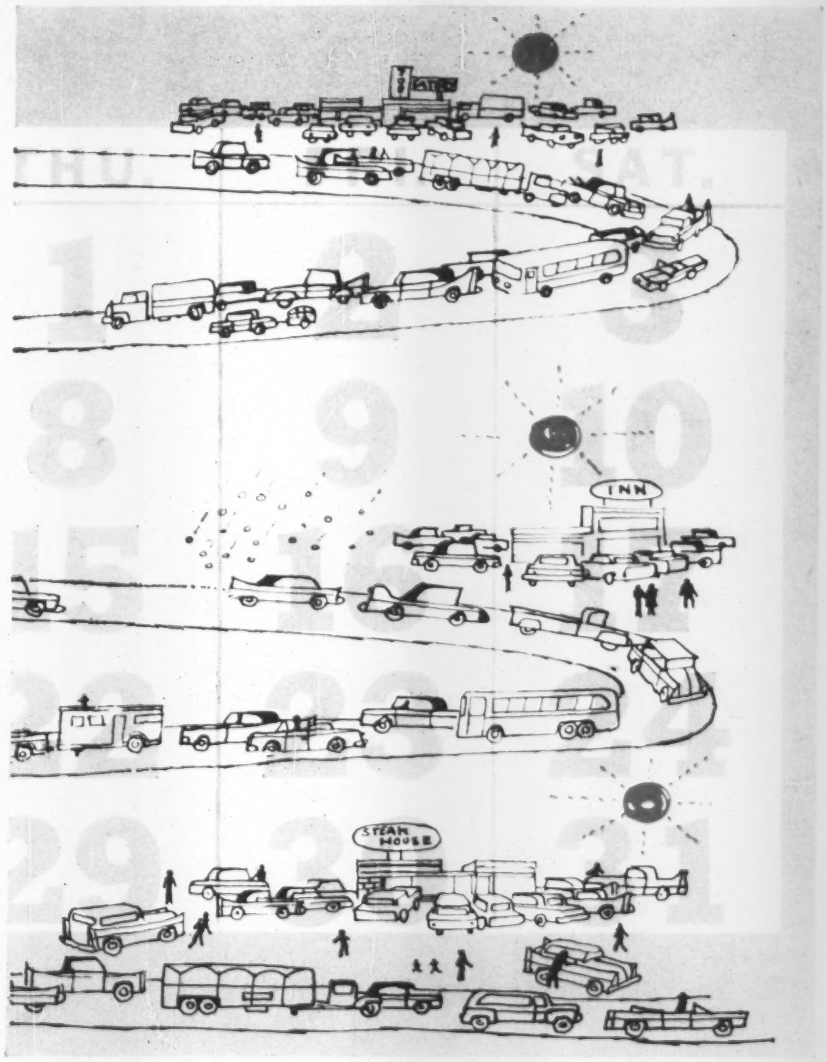
Daily sewage flow at a service area on the Northern Indiana Turnpike averages as much as 100,000 gallons equal to the flow from a town of 500 to 1,000 people. On a busy Sunday, heavy use of kitchen and sanitary facilities might put a peak load on the system. A few hours later, or on the next day at the same time, the flow might drop to as little as one-tenth the peak rate.

Studies of existing facilities along the Pennsylvania and New Jersey Turnpikes indicated to design engineers the general nature of wastes to be expected on the Indiana road. Combined kitchen and sanitary wastes averaged 500 to 550 parts per million biochemical oxygen demand, 150 to 200 ppm suspended solids, 100 ppm active detergents and 75 to 100 ppm of grease.

In early turnpike sanitary installations the heavy proportion of grease proved disastrous. Septic tanks and sand filters quickly clogged and had to be replaced with high-rate filtration plants or lines running to nearby municipal facilities.

Site conditions at the service areas along the Indiana road dictated certain requirements for the sewage treatment plants. Because of limited space, the plant would fall within 400 ft of the restaurant. This made compactness and pleasing appearance desirable, and freedom from odors and insects absolutely essential. The only receiving waters for the treated wastes of most areas were local water-supply sources or trout streams. This made it a must to achieve a high degree of purification of effluent.

Experience on the Pennsylvania and New Jersey turnpikes indicated to designers the futility of sand filters for wastes containing too much grease and the undesirability of low-rate trickling filters because of the accompanying flies.



Flexible Sewage Works

The activated-sludge process would create too much foam as a result of the high grease and detergent content. It would also be too sensitive to "shock" loads and would require locally unavailable skilled workmen, they concluded.

• **The solution**—Their answer is a small, automatic, high-rate trickling filter plant that adjusts itself for the highly variable loads.

"Brainwork" of the system is in a centrally located control panel. By means of bubbler-type controls, it maintains constant levels in a wet well and sludge sump. Under the influence of the controls are the comminutors, a lift station; sludge digestion; primary, intermediate and final sedimentation tanks, two-stage, high-rate filters; and recirculation pumps.

Recirculation takes care of sudden shock loads of raw sewage. The recirculation rate is independent of the raw flow and is constant. Thus each filter receives a constant flow while the ratio of recirculated influent to new influent varies from 0.88 :1 during peak loads to 11 :1 during minimum daily flow. Pre and post chlorination and chlorination of each filter influent is provided.

If the grease content of the raw sewage ever becomes high enough to overtax the capacity of the plant, the flow can be switched over to an unusual pre-digestion system. In this method all raw sewage first enters the digester, where grease, soap and detergents tend to break down. This prevents trouble later on. From the digester the sewage flows to the sedimentation tanks, then to the secondary treatment units.

Special two-speed motors are provided to overcome the additional head required to pump the raw sewage into the digester.

The danger that slugs or surges might cause turbulence in the digester is eliminated by an overflow line running from the digester influent box back to the wet well. This return line is fitted with a special butterfly valve controlled by the central automatic system.

To date, the pre-digestion system has not been needed. The overload of grease and detergents is cut down to manageable size by the use of special detergents and grease traps in the kitchen. At the plant a degreasing chamber is provided ahead of the primary sedimentation tank.

Accumulated grease is discharged into a 1,000-gal tank truck and buried at selected points along the road. Digested sludge is also collected and sprayed along seeded areas.

• **Water supply**—At four of the five service areas water supply is provided by two 10-in.-dia. deep wells, operated alternately. Each has a maximum capacity of 150 gpm. They are 800 to 1,000 ft apart—one on each side of the toll road.

At the one exception, water is purchased and supplied through 12-in., cast iron main 17,500 ft long.

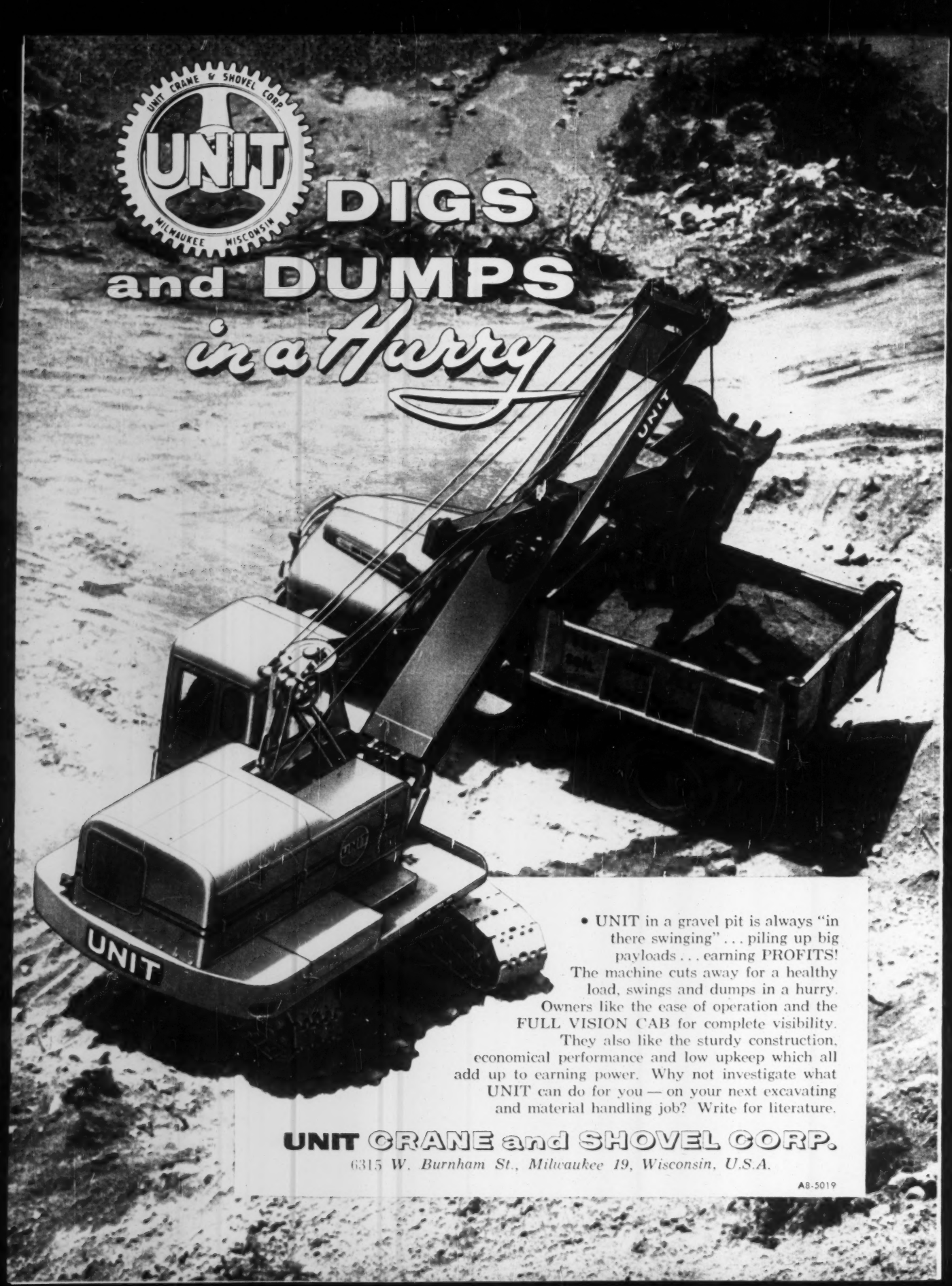
For treatment the chlorinators can provide 0.8 to 25 lb of chlorine per day. Though the rate is adjusted manually, the two chlorinators operate when the well pumps are pumping. At each well an injector booster pump shoots chlorine solution into the lines.

In the chlorine room, an electroconductivity analyzer constantly checks the atmosphere and sounds an alarm in the event of a dangerous concentration.

Pilot-plant tests at each site indicated the need for iron removal equipment at three of the areas. This consists of an atomerator and three anthracite pressure filters. Pressure aeration and pressure filtration methods are used. The filters —anthrafilt media on gravel bed—are 5 ft dia by 5 ft deep. Filtering rate is 2.55 gpm per sq ft and backwash rate is 196 gpm per sq ft.

Treated water is stored in a 10,000-gal tank. It is distributed through a 6-in. cast iron pipe.

The facilities for the Indiana Toll Road Commission were designed by the engineering firm of Charles W. Cole & Son, South Bend, Ind. Project engineer on the hydraulic phase was Walter F. Middleton, and on the electrical planning, Harold Bartels.



• UNIT in a gravel pit is always "in there swinging" . . . piling up big payloads . . . earning PROFITS! The machine cuts away for a healthy load, swings and dumps in a hurry. Owners like the ease of operation and the FULL VISION CAB for complete visibility. They also like the sturdy construction, economical performance and low upkeep which all add up to earning power. Why not investigate what UNIT can do for you — on your next excavating and material handling job? Write for literature.

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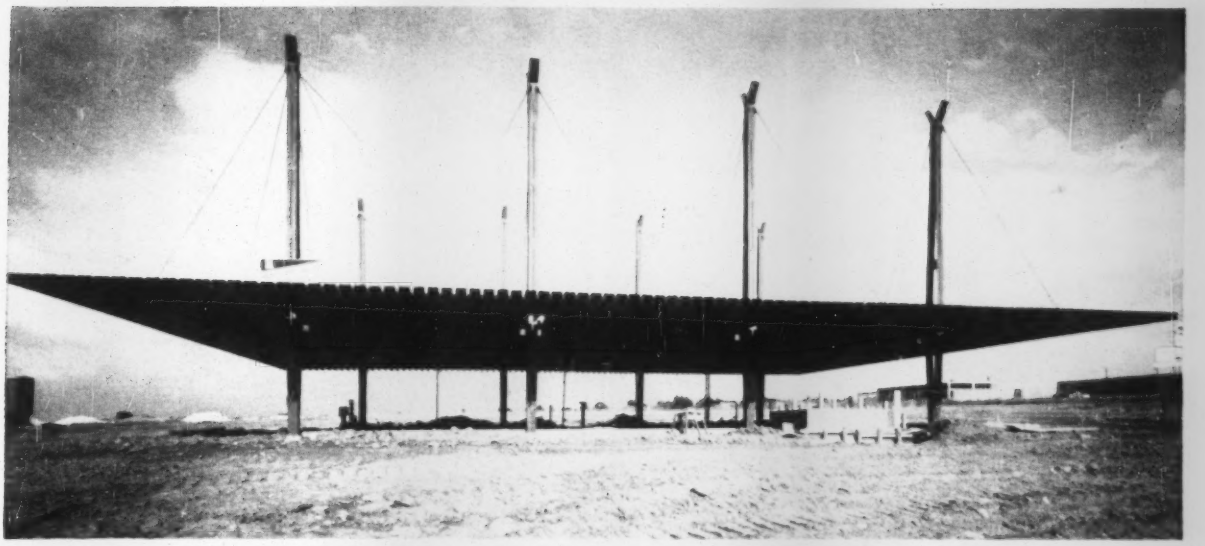
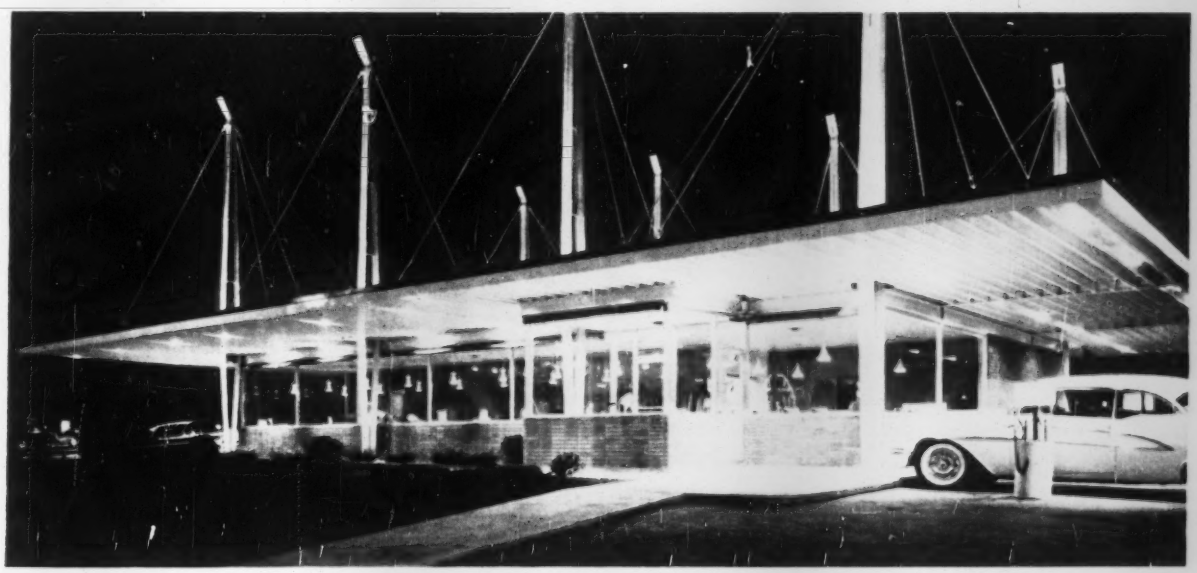


Metal deck roof is suspended by steel rods giving . . .



. . . clear interior, dramatic look for this St. Louis restaurant.

Hung Roof Gives Extra Space

Architects worked from the top down to make the most of the new Schneithorst Restaurant, a new St. Louis drive-in.

They placed eight columns outside the wall line and hung the roof from them. This provided 38 x 64 ft of uncluttered space inside for easier operation and efficient equipment layout.

Columns are built-up members, of steel angles and plates, that stand 32 ft high. Hanging from thirty-two 1-in. steel rods is the 7½-in.-deep, metal deck roof. It's 10 ft above the floor.

Two inches of rigid insulation above the decking is covered by plastic roofing and marble chips. Enclosing the structure are windows framed in aluminum and set in masonry walls.

The air-conditioning equipment hangs from the ceiling.

A gas-fired furnace warms the restaurant through hot-water unit heaters and baseboard radiation sections.

Robert Elkington and George Heneghan, Jr., are the architects. Structural engineers are Jay M. Lapin and Edward R. Dabler. C. Rallo Contracting Co. was the general contractor. All are from St. Louis.

The architects say the building cost "under $100,000," but exact figures haven't been released.

Mr. Elkington says the restaurant structure turned out "both economical and functional."

However, Mr. Lapin says, there is nothing particularly unusual in the design from an engineering standpoint; it uses a basic suspension system that takes advantage of continuity in the steel frame and decking.

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25% to 50%...
Are your ACTUAL OIL costs too high?
60¢ per gal. with 60 hour drain period=60¢ actual cost
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D-A "Extra-Treated" Diesel Oil Lubricates Your Engines Better for several reasons:

1 D-A's natural viscosity index is far superior to most competitive oils. This means that D-A "Extra-Treated" Diesel Oil thins out less with increase in temperature, offers more protection to engines under all conditions of heat, yet lubricates cold engines properly.

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Base oils seldom break down in service; more often, the additives are used up during operation. When they are gone, they can no longer help to protect an engine. D-A insures that the additives stay in the oil longer by using more and better additives to begin with. You extend your drain pe-

riods because you *know* that your oil is still able to protect your equipment.

❸ D-A oxidation inhibitors and detergent additives keep your engines cleaner. Varnish formation and sludge deposits are prevented by D-A's new types of high temperature anti-oxidants. Carbon and other inescapable products of diesel engine operation are held in suspension.

❹ D-A "Extra-Treated" Diesel Oil protects your engine from acid corrosion, one of the greatest known enemies of long engine life. Today approximately one-third of the diesel fuel oil manufactured contains more than .4% sulfur.

During combustion, sulfur is converted to sulfuric acid. When fuel oil contains .5% sulfur, acids are formed at the rate of approximately *one pound* for every sixteen gallons of fuel burned.

Extra amounts of D-A corrosion inhibitors assure maximum protection against excessive parts wear and possible engine failure. *D-A "Extra-Treated" Diesel Oil will neutralize the harmful effect of sulfur in fuel even when present in concentrations of up to 3%.*

Why you must have Laboratory Service to Extend Drain Periods

You can save time and money by using D-A "Extra-Treated" Diesel Oil and thereby greatly extending your drain periods. But you must *know* how far you may safely lengthen the drain interval! To do this, D-A's free laboratory analysis is at your service. This analysis is concerned principally with the following:

❶ SULFUR CONTENT OF FUEL

The more sulfur that exists in the fuel you are using, the sooner the alkaline reserve and detergent additives are depleted, because sulfur creates acids and hinders clean combustion. Therefore, it is essential to know just how much sulfur is present.

❷ FUEL DILUTION

Any oil will eventually become contaminated with raw fuel deposited in the crankcase during operation. When the amount of dilution becomes too great, excessive bearing wear and piston scuffing will result. *No oil* should be used after dilution approaches 15%.

❸ MOISTURE

Moisture in the oil, another inevitable by-product of combustion, destroys the oil's detergency reserve and lowers film strength. If moisture content is more than 2%, excessive wear or metal scoring will follow.

❹ ACID BUILD-UP

All *good* engine oils are alkaline when manufactured (some more so than others), but a continuous flow of combustion acids eventually neutralizes the alkalinity. When this happens THE OIL MUST BE DRAINED IMMEDIATELY, before combustion acids cause corrosion, excessive cylinder and ring wear.

❺ FOREIGN CONTAMINANTS

When sufficient abrasive material, such as dirt, dust or sand, has bypassed the oil cleaner and is flowing through the engine, excessive wear begins and must be stopped immediately, before expensive repairs are necessary.

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. . . SAVINGS OF 25% TO 50%. The best way to save money on oil is to buy the best oil—backed by complete laboratory analysis service. The most dangerous, most expensive thing you can do is to buy "any old oil" and to remain ignorant of what is happening inside your engine.

D-A will be glad to help you solve your lubrication problems and show you how you can get the best lubrication for the least cost.

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Continuous

R. Evan Kennedy
Structural Engineer
Portland, Oregon

A continuous framing system sped erection and cut costs in a 10-story parking garage now nearing completion in Portland, Ore.

Unlike conventional multistory buildings, the columns do not go through from floor to floor. The beams are continuous over the top of each column. The succeeding upper column is placed atop the beam and a simple bolted connection splices the beam at the inflection point.

Result is a rather low steel weight of 218,000 lb—6.35 lb per sq ft in the nine supported floors.

The building is designed for a new mechanical parking method. Called the File-A-Way Parking System, it features a lifting device that supports the wheels and permits handling of locked cars.

The structure consists of two building towers separated by a slot that houses two parking machines. Each tower is 90x14½ ft center-to-center of columns. Cost of the structural steel frame: only $39,000.

Main structural elements are 12-in. beams, 10-in. girders and 10-in. columns. Columns are spaced 14½ ft transversely and 22½ ft longitudinally.

In this continuous framing system, half of each column-beam connection is shop fabricated. In the shop, beams are connected to the top of the single story columns by means of a welded detail; stiffener plates between beam flanges are fabricated; and welded to the top and bottom flanges of the beam are ½-in.-thick column seat plates.

The result is an unusual, one-piece assembly of columns and beams.

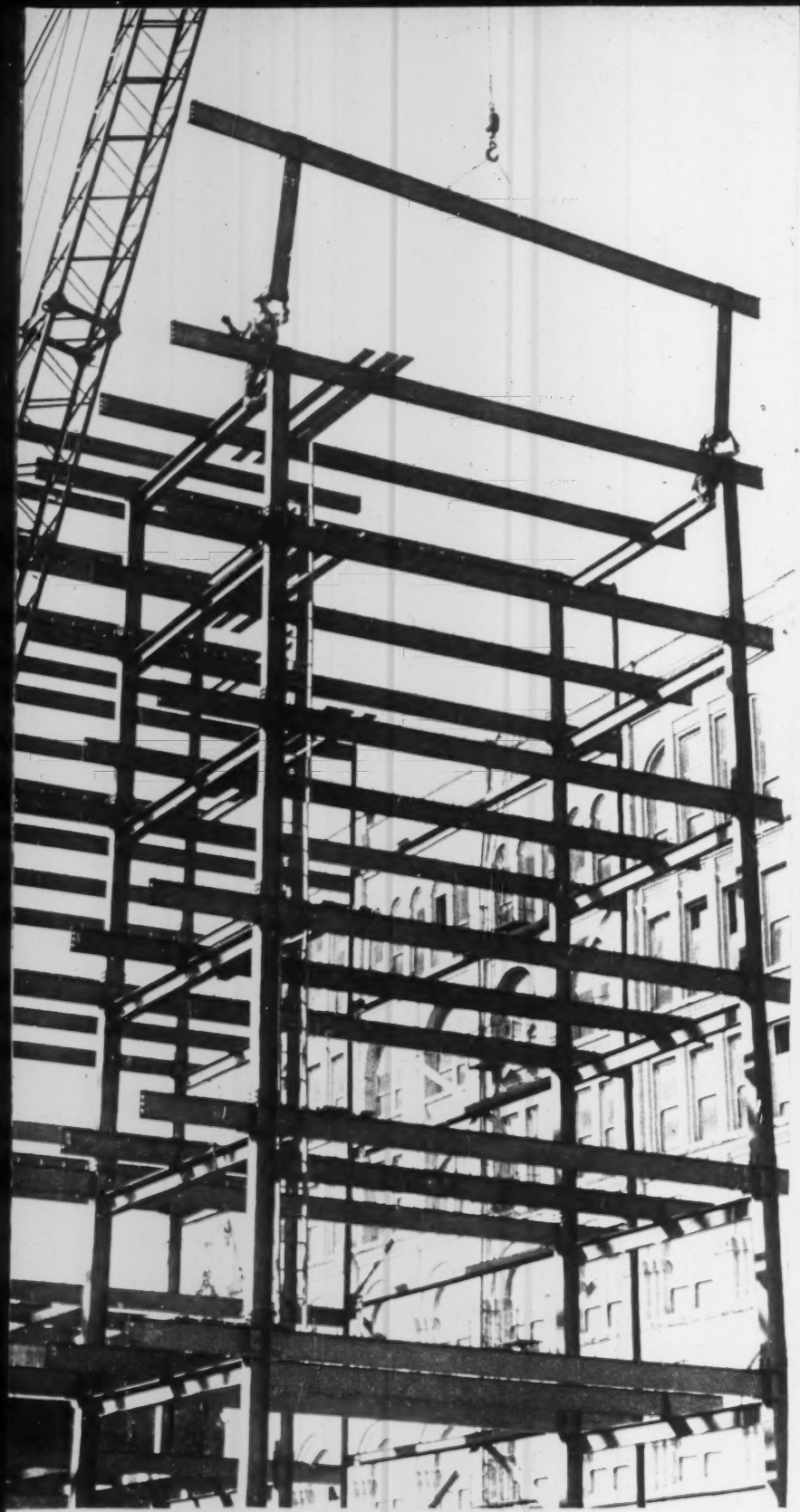
The field connection includes both high-tensile bolts and welding—all down hand.

Columns are connected to the beam flange top by two ¾-in. bolts. Shims are inserted between the column base and the seat plate, as needed for positioning. Flange plates, bolted to the column, are welded to the column seat plate.

Floor slabs, 4 in. thick, are cast in place. Welded studs, that have been applied in the shop, tie the concrete to the steel frame.

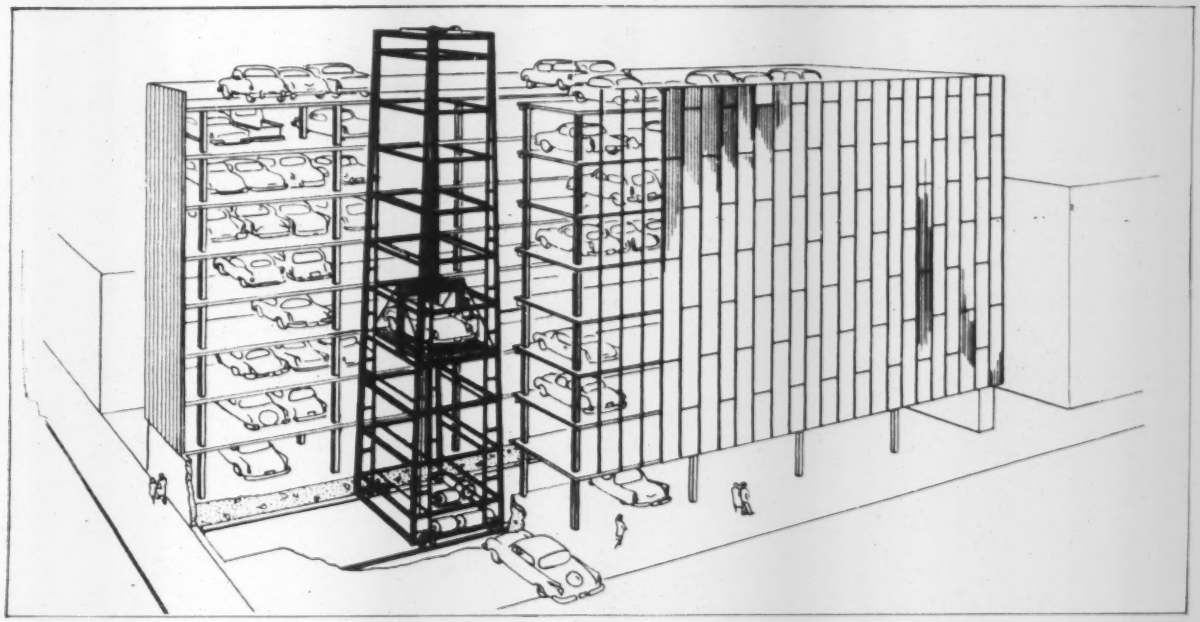
The designers planned the building to withstand both high wind and earthquake forces acting at the same time—and with a 4,500-lb automobile in each parking space. Wind was generally more critical.

The towers are connected by a concrete fire wall at one end and, at the



Column and beam assembly is hoisted in place on Portland garage. Making the beams continuous over the columns provides structural continuity.

Framing Cuts Costs, Saves Time



This cutaway view shows one of the two moving towers that service the garage. Cars are lifted in the tower by elevator equipment while rollers permit the tower to move horizontally.

other end, by both horizontal and X-bracing bars.

The building's side walls are faced with vertical steel mullions. Mounted between the mullions is a curtain wall consisting of a grille formed from an expanded aluminum sheet.

The resulting expanded metal is 25% open. This reduces wind loads and permits ventilation. And the grille is shaped to protect cars from sun and rain.

The end wall section is faced with steel solid panels.

• **New parking machine**—Unlike other mechanical systems, the parking device touches no part of the automobile's frame. It picks the car up by the tires.

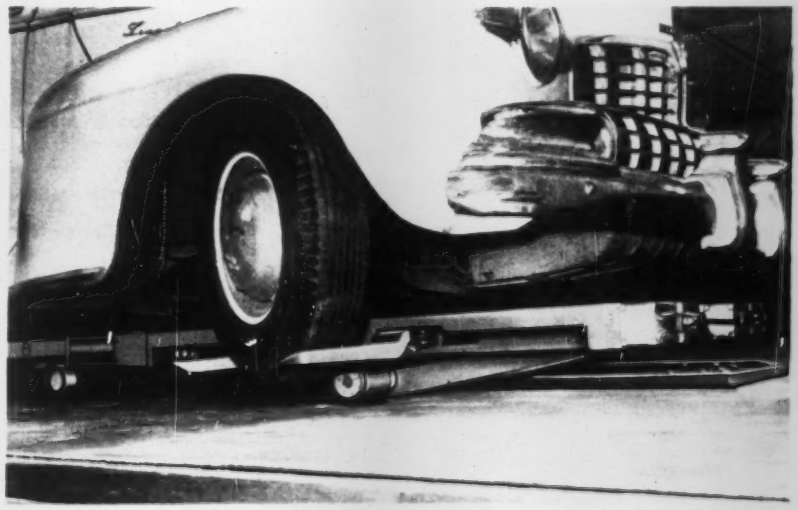
A shuttle slides under the car and extends arms that hold the tires in a crablike grasp.

The shuttle, with its load, is lifted by elevator equipment in a moving tower. An operator riding on the elevator platform controls the tower's horizontal motion with a simple wobble stick control. The operator can move horizontally and vertically at the same time, making it possible to move directly to the desired locations. He can move vertically at 500 fpm and horizontally at 100 fpm.

Two moving towers service the garage.

At the tenth floor, rollers on each side of the moving tower maintain it in correct relative position with the building's top concrete slab.

The tower is designed stiffly enough to prevent earthquake or wind deflection from lifting its wheels off the rails; it will deflect with the building.



A new parking machine used in the garage lifts the car without touching any metal parts. It grabs the tires in a crab-like grip.

• **Who did it**—Architects are Edmundson & Kochendorfer, with the author as structural engineer. Robert Resseger did the detailed structural designing. A. Young & Son Iron Works furnished and fabricated the structural steel, with erection being done by Steel Construction Co. Montgomery Elevator Co. built the elevator equipment. A. V. Peterson Co. is the general contractor. Allen Bigler invented the parking machine, which is manufactured by Gunderson Bros. Corp. All are Portland firms.

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1 CUBIC YARD LOADER on 2-Star Crawler with power shuttle challenges you to find its equal at low-cost dirt moving. 2-Star also comes with Moline backhoe, log forks, scarifier. 2-Star gives top performance with fuel-saving power.

★ **Backhoe-Loader combination custom-designed for the new Moline Industrial Wheelers!**

★ **Entire unit sold and warranted by Minneapolis-Moline!**

★ **National dealer organization assures 1-stop 24-hour parts and service!**

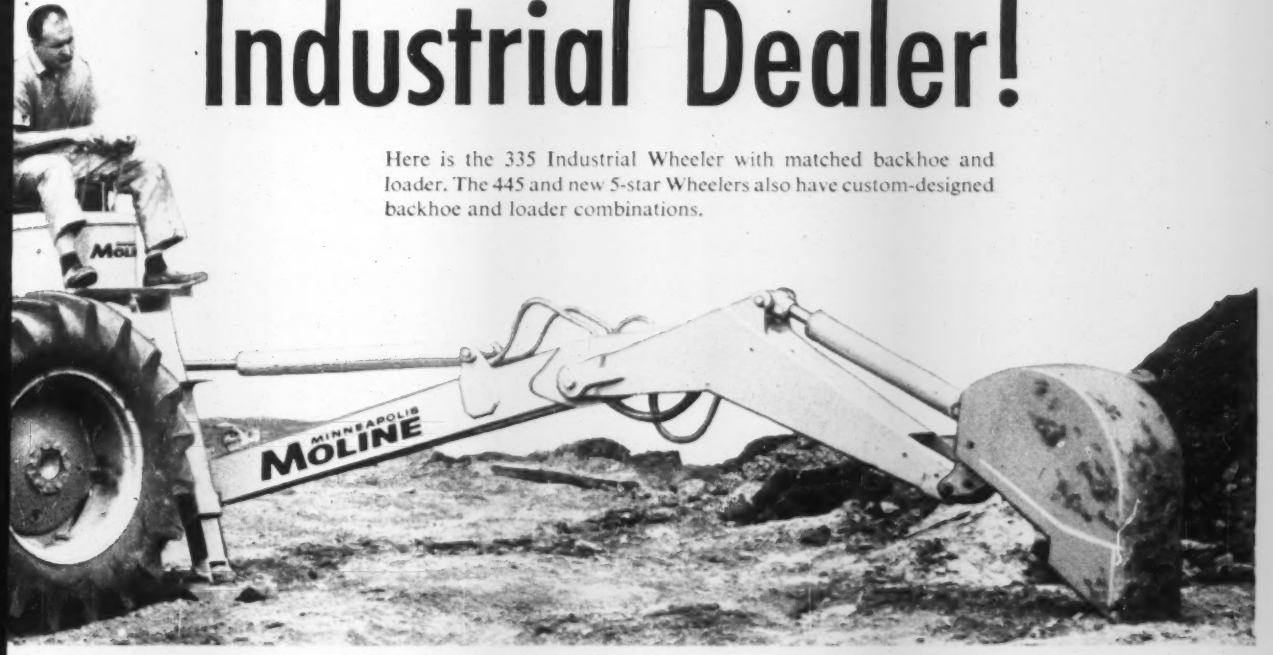
2-STAR CRAWLER is power-proved for dozer capacity. Moline power shuttle boosts working range on all jobs. Gives unmatched performance with fuel-saving power, faster change of speeds, directions, advanced engineering improvements.

445 INDUSTRIAL WHEELER with its ¾ yard loader is the heavy-duty companion to the 335. Matched backhoes and choice of fuels. Hydraulic power steering. Ampli-Torc transmission *doubles* effective working power without clutching.

335 INDUSTRIAL WHEELER shown with matched backhoe and loader is the answer to your digging problems in tight quarters. Really easy to maneuver. Large capacity, works side-by-side, hour-for-hour with the BIG BOYS.

# of wax" from one man... Industrial Dealer!

Here is the 335 Industrial Wheeler with matched backhoe and loader. The 445 and new 5-star Wheelers also have custom-designed backhoe and loader combinations.



From the *new* Minneapolis-Moline comes the *newest* advance in construction equipment: field-proved Moline Wheelers and Crawlers and *your choice* of specifically designed equipment matched to this industrial power. Entire unit is fully warranted by Minneapolis-Moline! **Here are advantages for you:** You can buy the particular piece of equipment you need now for your Moline Wheeler—then you can add other equipment perfectly matched any time your jobs require it! Your maintenance and service are simplified. And parts for the whole "ball of wax" are immediately available from your Moline dealer.

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Roger Hipwell, *Sales Manager*
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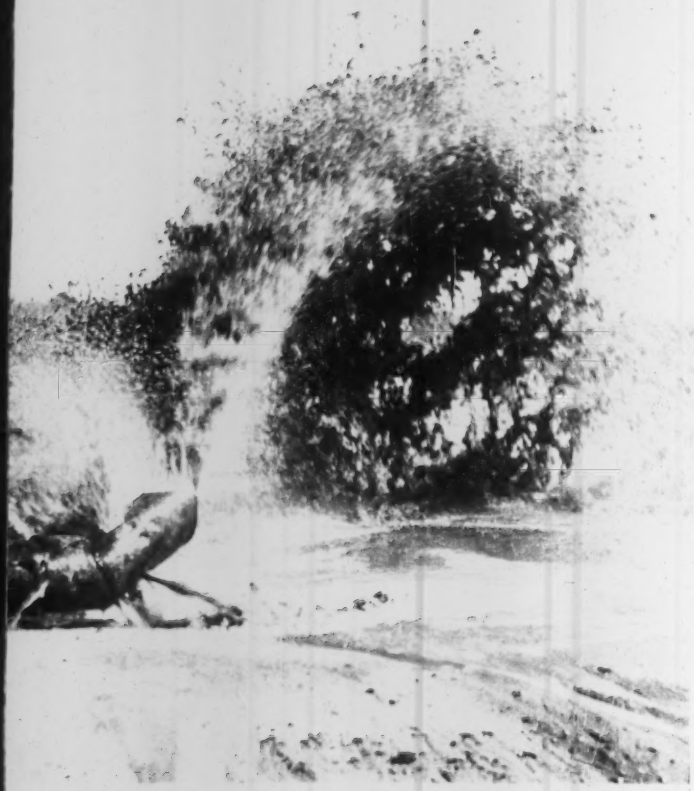


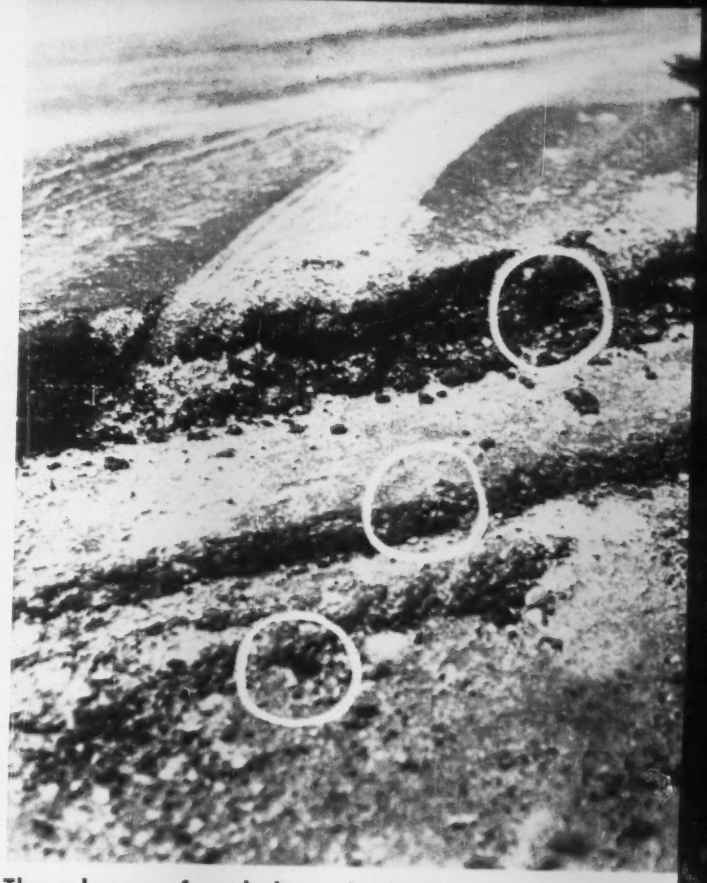
Dredged fill is discharged onto right-of-way . . .

Dikes that run the length of the road hold

Asphalt-Sand and Dredge-Placed

Bituminous concrete surfaces four-lane divided highway

in fill until it drains and is shaped . . .



Three layers of asphalt-sand mix form base

Fill Go Into Highway

To make a four-lane divided highway through tidal marsh along the Delaware Dunes, the contractors used fill dredged from a bay bottom and spewed onto the right-of-way, three base layers of an asphalt-sand mix and a wearing course of bituminous concrete.

The job was to turn 5.6 miles of 18-ft-wide Delaware road into four 12-ft lanes with a 50-ft median strip. The job also called for 10-ft outside shoulders and 4-ft inside shoulders. It meant providing additional roadbase approximately 84 ft wide along the route. The old lanes were to be ripped up and the base incorporated in the new roadway.

Original specifications called for mucking out vegetation and other unsuitable material to a depth of about 5 ft. Then select borrow would have to be trucked in and compacted.

To do the big job of fill, the contractor elected instead to bring in a pipeline dredge and move fill from the bay bottom, a cheaper method. The state highway department gave its okay.

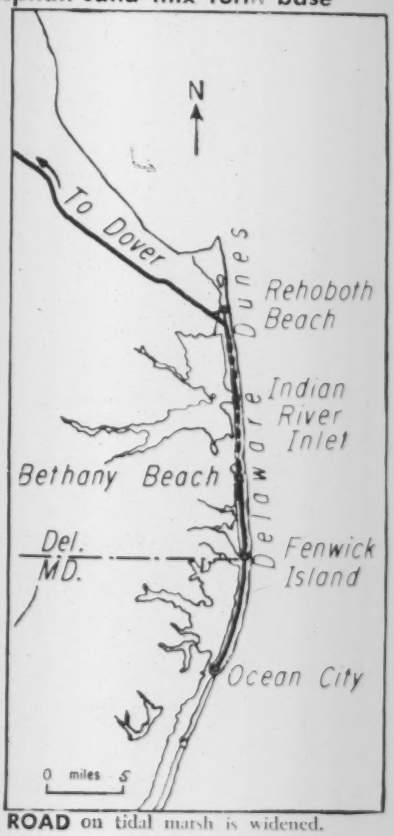
After removing the unsuitable material, the contractor built 5-ft-high earth dikes along the entire length of the roadway. These were to hold in the watery fill until it had time to drain.

Using a 12-in. discharge pipe, the dredge started to do its work. It sucked up, moved and threw out water-suspended sand and gravel at the rate of 200 to 300 cu yd an hour, working around the clock.

At some points the dredge was as much as a mile away from the road site; at others it came to within 400 ft of the road. Discharge pipe was lengthened and shortened accordingly. In all, the dredge placed some 500,000 tons of material.

The material produced a fill that averaged 5 ft deep along the route. And it was a fill that required almost no compaction. (Most hydraulically placed embankments usually achieve their own high degree of compaction.) However, in order for paving machines to work on top of the fill, a 4-in. blanket of compacted sand and clay was put in after the fill had been roughly shaped.

For a road through such an area, the state went to a flexible type roadway. Aggregates have to be imported into Delaware. And for this job, they would have been more expensive still, since



ROAD on tidal marsh is widened.

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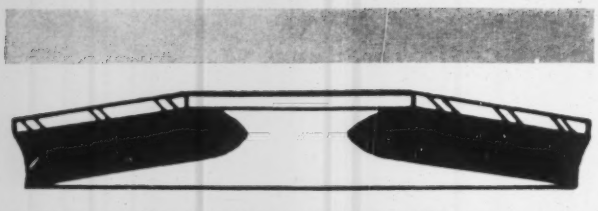

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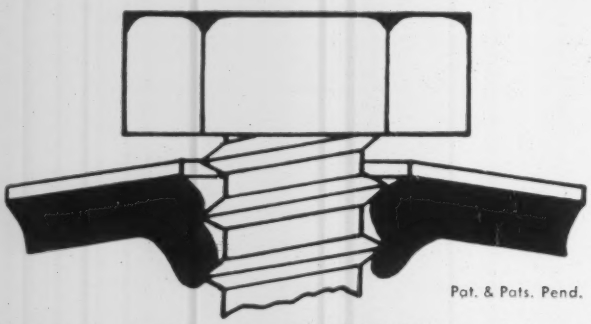
View assembled only to TOPSEAL FASTENERS



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PIPELINE DREDGE worked as close as 400 ft from site as far as a mile.

they would have had to be trucked long distances. Therefore, the highway department decided to use layers of a centrally mixed asphalt and sand for the roadbase. This made possible the use of cheap natural materials found along the route.

Three layers of the asphalt-sand were laid down. The contractor set up a central plant to prepare the mixture and he used asphalt pavers to lay it. The first two layers were each 2 in. thick, the third was 2½ in.

A 1½-in. course of high-type bituminous concrete is being used as a wearing surface for the high-speed road.

This stretch of road is part of Delaware's statewide road-widening program (ENR Dec. 11, 1958, p. 52). In this case, the plan is to improve the link between Delaware's plush seaside resort town of Rehoboth Beach and Maryland's Ocean City.

The 5.6 miles are the middle part of the road. They run from Indian River Inlet south to Bethany Beach. Later, the road will be widened north to Rehoboth Beach and south to Fenwick Island at the Maryland border. There it will meet up with a single 90-ft-wide Maryland road to Ocean City.

The road will see only very light traffic for nine months of the year, but it will prove its worth during the three summer months. During vacation season cars have been bumper to bumper as they made their way along the old narrow road between the two resort towns.

Eventually Delaware will dualize the highway—which is Route 14—still further, from Rehoboth Beach north to Dover.

The present job went under a $1 million contract to Henry Eastburn & Sons, Newark, Del., at the end of 1957. It is expected to be fully open to traffic by this summer. Chief engineer for the highway department is Richard A. Haber; construction engineer is Lester W. Novinger.

"Our LIMA 1250 Crane is really a brute for punishment"

says McCloskey & Co.
Philadelphia, Pa.

A big Lima Type 1250 Crane owned by McCloskey & Co., noted Philadelphia contractor, was used on their $5,000,000 job in the heart of the Quaker City. Part of this project involved demolishing the century-old Chestnut Street bridge and adjoining seawall. Besides pulling the old piling out of the bank of the Schuylkill, the Lima had the job of driving 1800 steel piles, 60 ft. long and weighing from $1\frac{1}{2}$ to $2\frac{1}{4}$ tons each.

Job Superintendent Stanley Czapkewicz says: "Our Lima 1250 Crane is really a brute for punishment and has done an excellent job. I've had a lot of experience with Limas, and know them to be outstanding machines. The Type 1250 Crane more than lives up to expectations.

"Lima service means a lot too. When the crane was delivered, the factory service man helped us with the unloading, then made sure that our operator knew exactly how to handle it. He has since made several follow-through calls. We also know we can count on our local Lima distributor for parts and service any time we need them."

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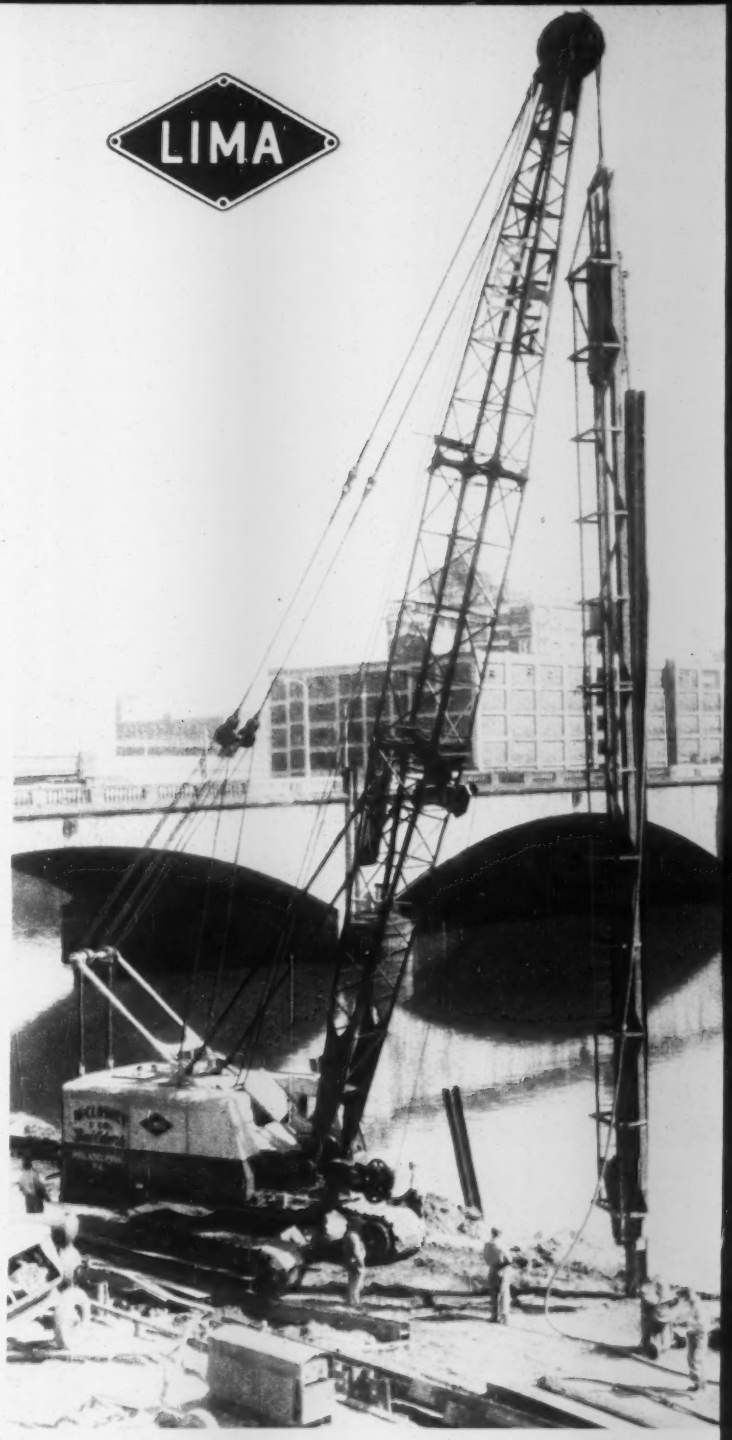

Lima Type 1250 Crane driving piles on bridge building job, Schuylkill River, Philadelphia, Pa.

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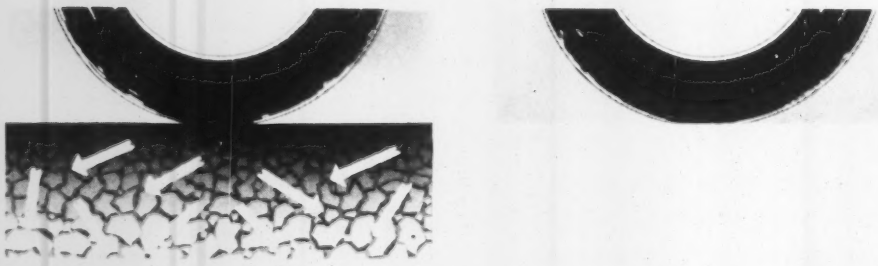
Concrete

On the Ohio Turnpike, every mile is —the paving material with no

Left: Diagram shows how flexible pavement parts must move. This grinds off corners of aggregate, destroys interlock, causes deep wear. Result: low spots, subgrade overloading, failure.

Right: Diagram indicates stability of rigid concrete. There's no internal movement of aggregate and bond. One reason only concrete's load-bearing strength can be computed *mathematically*.



CONCRETE

"moving parts" to cause hidden wear!

$7,181,898, based on first-cost estimates, was saved by choosing concrete. Now maintenance costs are running about half the original estimates! More proof that concrete does the job—and does it for less money. Last year, Ohio's concrete Turnpike handled some 11¼ million vehicles—thousands with loads of 70,000 to 90,000 lbs.—saved money doing it.

There's a reason. Concrete is built to *bear* like a beam, not to *flex*. For flexibility means movement . . . movement creates friction . . . friction brings wear that causes a pavement to wear out *inside* as well as on the surface. That can't happen with concrete.

Stability helps give today's concrete its 50-year-plus life expectancy—and its lasting, flat smoothness. On new Interstate Highways, on all heavy-duty roads, concrete means true economy both now and in the future.

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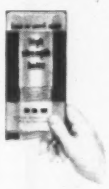
Railroad bridges also, long plagued by rivets loosening from severe vibration, are being built to avoid future maintenance problems and to save money. It started when the AAR arranged with several railroads to replace rivets with high strength bolts in troublesome locations. With subsequent inspection, (1) the bolts showed no cracked paint, rust or other signs of slippage of members; (2) bolts retained their original clamping force. In one recent repair project, only 10 manhours were required to bolt trestle section, as compared to 30 manhours for riveting.

And for overpass bridges, too, it's faster erection at lower cost per ton of installed steel when connected with RB&W High Strength Bolts. Typical 4-lane highway bridge was erected in 40% of the time and with ½ the manpower which riveting would have required. "Bolts a necessity if schedules are to be met...almost always an economic advantage also," said the construction coordinator.

Need more be said? If you're putting up a bridge or building, top it with more quality and economy ... use RB&W High Strength Bolts. Bulletin HS-1 tells more. Write Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, New York.



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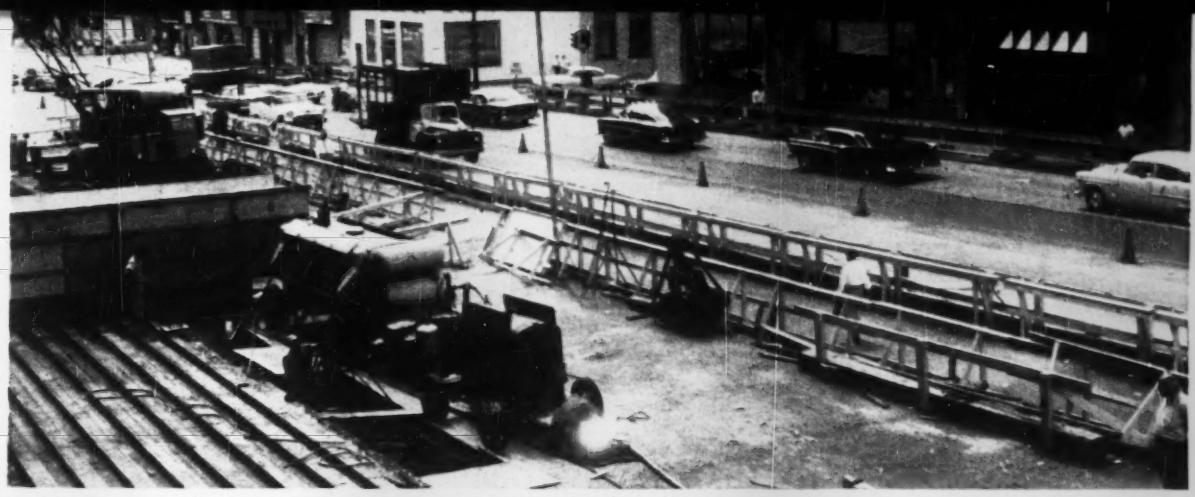
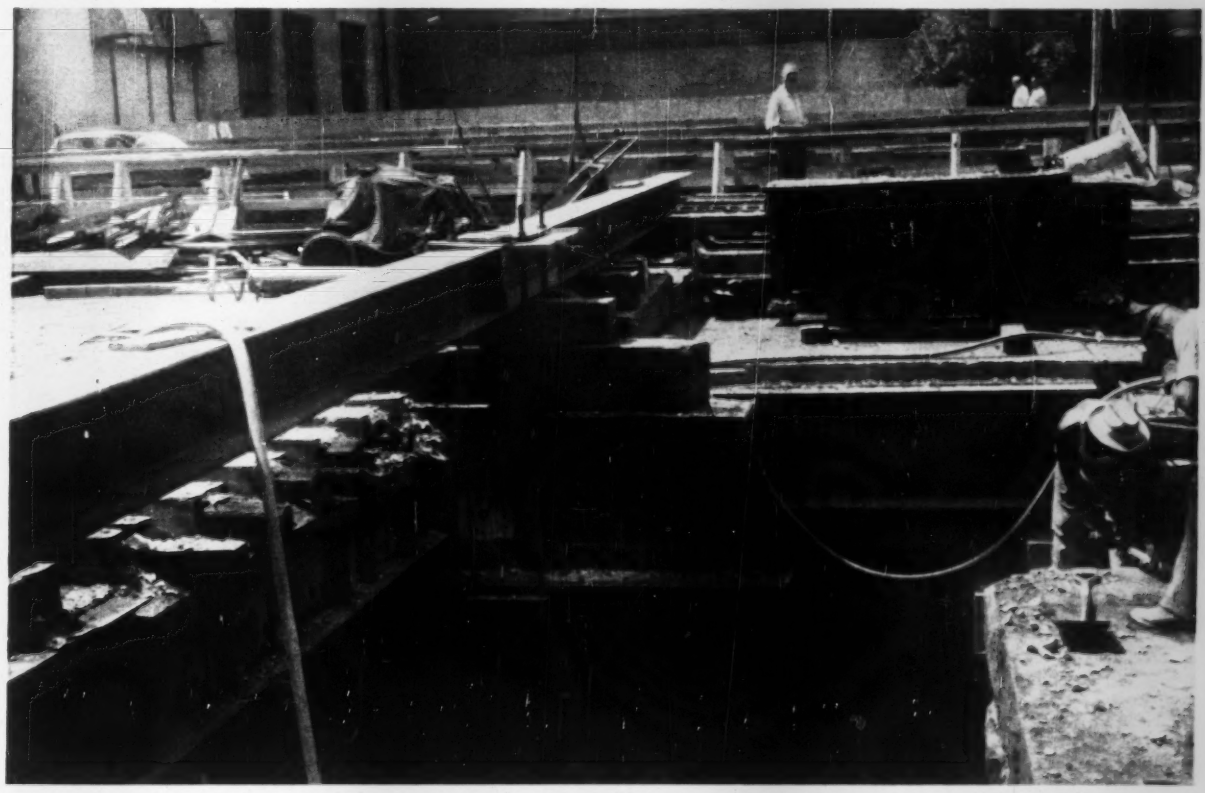


Philadelphia contractor rebuilt a downtown bridge in stages to keep auto traffic moving, and . . .



. . . to keep train tracks clear, he suspended old beams from temporary beams spanning the work.

Bridge Rebuilding Doesn't Stop Traffic

John Gibson
Resident Engineer
Department of Streets
Philadelphia

Traffic on it and trains under it complicated reconstruction of a street-level bridge superstructure on one of downtown Philadelphia's heaviest traffic arteries.

The job involved a 260-ft-long Broad St. bridge with 70-ft roadway and 22-ft sidewalks. Today's traffic was too much for the bridge's ten-ton capacity.

During reconstruction the contractor had to maintain four traffic lanes on the street, which has a peak volume of 2,500 vehicles per hour. Continuous access had to be provided to main entrances and fire exits of large office buildings bordering the bridge.

He had to keep free and clear busy freight railroad tracks passing beneath the bridge. Vehicle access had to be provided, both beneath the bridge and on street level, to an adjacent freight terminal.

The contractor kept the abutments and piers of the old five-span bridge, set in new concrete caps and steel beams, cast a new deck of reinforced concrete slab, except in the terminal area where a filled grid was used.

To maintain traffic during construction, the bridge was rebuilt in four stages. Not until one stage, or full-

Steel construction permits easy and thorough inspection

THE OLD Harrison Street Bridge over Carnegie Lake in Princeton Township, N. J., was being inspected when this picture was taken in the spring of 1958. And, as expected, the steel structure, which was built by American Bridge 52 years ago, was again found to be in practically perfect condition.

But, that's not the point . . . for it is a firmly established fact that no modern construction material is stronger, more wear-resistant, and longer-lasting than structural steel.

The significant point is that structural steelwork lends itself to *easier and much more thorough inspection* than any other type of construction material.

As you can see, inspection of this old bridge was conveniently made from a boat, which not only enabled the engineer to thoroughly scrutinize the underside of the superstructure, but also provided easy access to the piers.

The condition of steel is obvious during manufacture, during fabrication, during erection and years after installation. With steel, there is never any need for guesswork. *A steel structure is always easy to check visually.*

So, to the other advantages which so clearly make steel the soundest construction material, add "ease of inspection." For, down through the years this important advantage will contribute increasingly to the safety of the structure by enabling you to detect and correct *quickly* any possible wear or tear.

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. . . Bridge rebuilding

length section of the bridge, was ready to take on traffic, did demolition begin on the next.

Extra temporary road was stolen from the sidewalks by eliminating the curb with binder material.

Concrete for the deck was a 3,000 psi. high-early-strength mixture, with an admixture to delay set. Close control was exercised as the water content of the mixture was reduced to the absolute minimum in the last slab pour of a stage. Cylinder reports showed that traffic could be permitted on the slab after three days normal curing. This saved valuable time in getting the stage open to traffic.

The admixture was necessary to postpone initial set long enough to complete large slab pours. Otherwise the steel beam's deflection might have caused cracking.

Temporary 7-ft sidewalks on both sides of the street easily solved the problem of providing access to buildings.

The contractor worked the terminal area on weekends, when the terminal was closed.

On one weekend, he cut the old beams away from the piers. This enabled him to go ahead and cast the concrete caps. However, he did not immediately replace all the old beams with new. He left enough in place to take terminal traffic. This kept demolition at a minimum for any one period.

The severed beams were supported by bents that cleared the tracks below. Where track clearance was so tight that supporting bents could not be used, the old beams were hung from a temporary beam spanning the stage under work.

A concrete filled grid was used as decking along this stretch. Although it cost twice as much per square foot as the reinforced slab, the grid system made possible a quick and continual deck for terminal traffic.

The contractor finished close to his 80-day schedule even though hit by a strike on the job. At another time, he was crowded in his work area by a lively strike in an adjacent building.

Kaufman Construction Co., Inc., Philadelphia, did the work under a $620,000 contract for the city's department of streets. Joseph J. Jones was superintendent.

Design—under AASHO H20-S16 loadings—was by Gannett, Fleming, Corddry & Carpenter, Inc., Harrisburg, Pa.

Contract was handled by the bridge division of the department with Noel Willis, chief bridge engineer. Robert Donoghue was construction engineer and the writer was resident engineer for the job.

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Lift Barrier Protects Lowlands

Holland's defenses against the ocean have been reinforced with a huge lift gate at Ijssel River in the southern part of the country. The gate is a vertical steel wall, 263 ft wide and 38 ft high, backed by two horizontal girders with a stiffening arch. It closes the mouth of the river during high tide and storms to prevent flooding of the lowlands. It can be lifted 61 ft to allow normal river traffic. The gate is the first completed project in a plan to secure a large part of the Rhine River delta area from flooding.

Land Reclamation to Aid Cramped Calcutta

A 2,400-acre, low-lying area would be turned into a residential suburb of overcrowded Calcutta by work soon to be put out for bids by the West Bengal government.

The project will take six years and cost about $13.6 million. Deferred payments will reportedly have to be acceptable to the contractor.

The plan, as outlined in a report of Netherlands Engineering Consultants, a Dutch firm, is to use fill to raise the land in the area from its present elevation of 4 or 5 ft above sea level to a new height of 11 ft above sea level. The area would provide living space for 15,000 people.

The area is known as North Salt Lake. It lies east of Calcutta. Some 800 million cu ft of dredgings from the silt-laden Hoogly River will be placed in the region and into two existing canals. Four bucket dredgers and a pumping station will be needed. Before dredge and pump operations are started, however, strengthening of the surrounding embankment will be necessary.

Storm water is to be discharged by a separate drain system into Krishnapur Canal, which flows nearby. A new 2½-mile canal is also to be excavated.

The scheme is closely linked with another plan to develop 14 sq mi for agricultural purposes.

Moscow Rolling Mill Makes Prefab Concrete Panels

Seven persons operate this factory for precast concrete at the Kalibrovsky Experimental Plant in Moscow. One rolling mill of this type reportedly produces enough parts in a year to construct 2,500 apartment units.

Concrete panels ranging from ¼ in. to 1½ in. in thickness are being turned out by the mill. The rolling strip makes sections corrugated on one side, smooth on the other. Used in pairs as a sandwich panel, with smooth sides out and an air space between, they reportedly replace a single panel 12 in. thick.

The Kalibrovsky plant is in continuous production turning out floor slabs, outside wall panels with window and door frames and interior partitions.

Japan Begins Operations On Five-Year Road Plan

Japan's Ministry of Construction has begun a $2.5 billion, five-year, road-building and maintenance program. It is aimed at reducing traffic congestion in cities and on highways running through heavily populated areas.

The program is the outgrowth of a road survey team that toured Japan for more than two months in 1956 at the request of the government.

The most important part of the program will be the Kobe-Nagoya-Tokyo Expressway, which will run through the most densely populated and most industrialized area of Japan.

The Doro Kodan, a semi-official road construction body, has received approval from the national government to begin purchasing 23,000 acres of land along the 116-mile route from Nagoya to Kobe. Construction of this section will cost about $255.8 million. It will be completed in three years.

Also included in the program will be the paving of most of the 1,852-mile national trunk highway from Wakkanai, on the northern tip of Hokkaido, the northernmost island, to Kagoshima, the southernmost city of Kyushu Island in the south.

The number of registered motor vehicles in Japan rose from 475,000 in 1950 to 1.9 million in 1957. The number of trucks in use increased from 200,000 in 1950 to 955,000 in 1957. The number of two- and three-wheeled vehicles jumped from 200,000 in 1950 to 1 million in 1956 and then dropped to 770,000 a year later. The Japanese registered 235,000 passenger cars last year, as compared to 75,000 in 1950.

(*International continued on page 52*)

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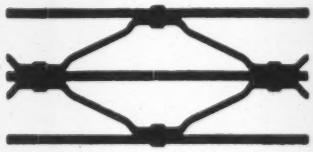

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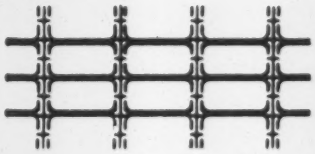

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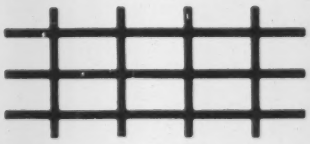

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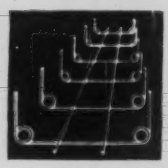

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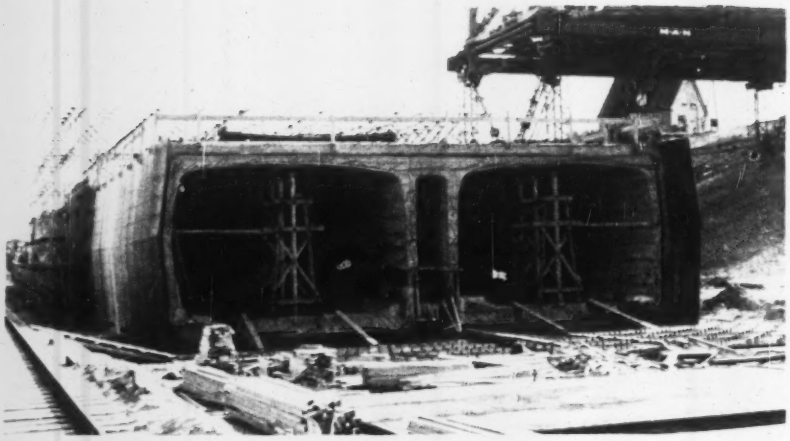


TWIN-BORE SECTIONS are precast, will be floated and sunk into place.

APPROACH EXCAVATION leads right up to water's edge.

Kiel Canal Gets Sunken Tube

West Germany's $12 million tunnel under historic Kiel Canal in Schleswig-Holstein is going at a rapid pace. Its main underwater section is expected to be sunk into place any day now.

The tunnel is part of an all-out effort to break the bottleneck on the main highway linking Germany and Denmark. Crossing is being made at Rendsburg.

The tunnel is a twin-bore structure of reinforced concrete. Each bore carries a two-lane roadway. The vehicle tubes are separated by a small passage for cables, pipes and a footway for inspection personnel.

Overall width of the tunnel is 64 ft, height is 22 ft. Length, including approaches will be 2,045 ft.

The central portion of the tunnel is being cast and preassembled in a basin excavated on the south side of the canal. It is made up of seven 64-ft-long sections.

When ready, the basin will be flooded and the assembly floated into position across the canal. It will be sunk into a previously dredged trench.

The floating assembly will be 450 ft long and have a displacement of 20,000 tons deadweight. Sinking it is expected to interrupt canal traffic for no more than 24 hours.

Final completion of the tunnel is set for summer of 1961.

The Kiel Canal—also called the Kaiser Wilhelm Canal—connects the North and Baltic Seas. It was started in 1887, finished in 1895 and later was modernized in 1907. The canal measures 61 miles in length and has an average depth of 37 ft.

PROGRESS REPORT FROM

KANSAS

Known across the Nation as a leading producer of wheat, beef, and aircraft, Kansas is also playing an important role in the road building program.

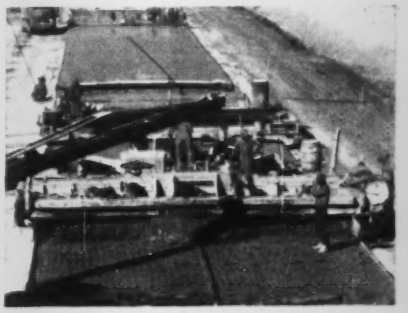
Progress reports from bridge engineers show that reinforced concrete construction is the principal type being used. These reports also mention that there are several hundred bridges in Kansas which are constructed exclusively of reinforced concrete.

More and more highway engineers in many other states are finding, too, that their bridge and grade separation structures are being completed on schedule when they design in REINFORCED CONCRETE.

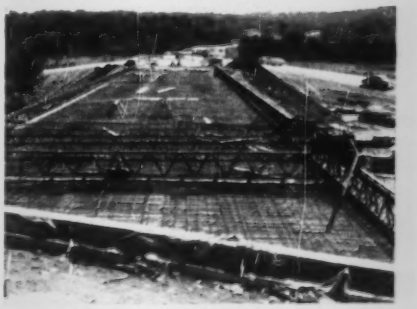
New Kansas bridges take shape on schedule with REINFORCED CONCRETE

Reinforced concrete box bridge construction on Highway US-40, Hays Bypass, Hays, Kansas.

Photographs courtesy of State Highway Commission of Kansas, Topeka



Paving reinforced concrete road section on Highway US-50 at Strong City, Chase County.

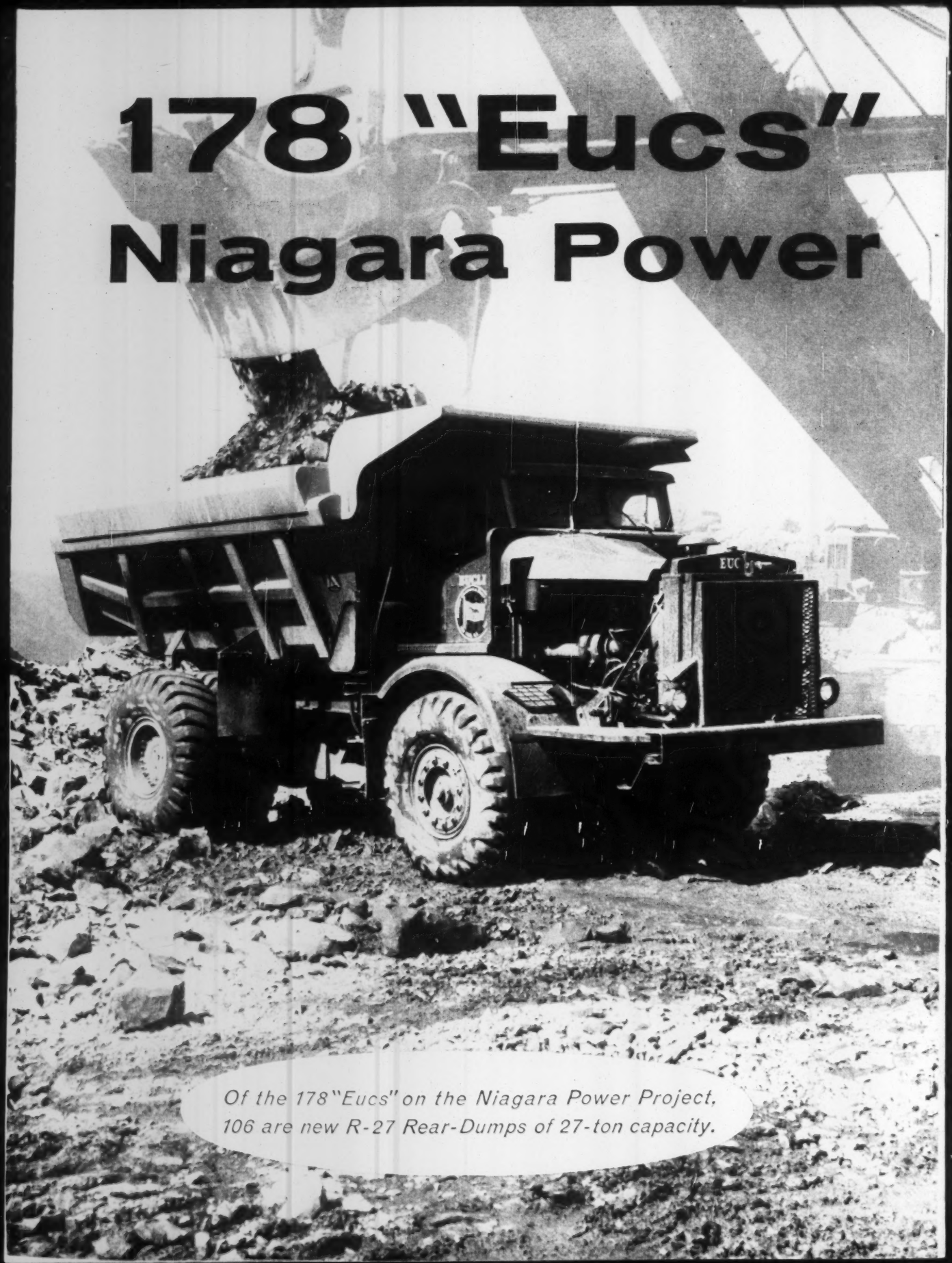


Reinforcing bars shown in place on bridge before pouring deck on Highway K-58, northeast, Johnson County.

Pouring concrete on deck of hollow core slab of reinforced concrete bridge on Highway K-58, northeast, Johnson County.

CONCRETE REINFORCING STEEL INSTITUTE C.R.S.I.

Concrete Reinforcing Steel Institute
38 South Dearborn Street, Chicago 3, Illinois


178 "Eucs"
Niagara Power
EUC
Of the 178 "Eucs" on the Niagara Power Project,
106 are new R-27 Rear-Dumps of 27-ton capacity.

Working on the Project

Gull Contracting & L. G. Defelice are using 36 of these 27-ton "Eucs" on their 4½ million yd. channel excavation work.

"Twin" Scrapers in the Euclid fleet of Channel Constructors help remove overburden from rock that will supply the big aggregate plant.

Balf-Savin-Winkelman have Rear-Dump and Bottom-Dump "Eucs" in their fleet. Earth excavation for the two inlet channels is hauled in 12 bottom-dumps.

THE $625 million Niagara Power Project being constructed by the Power Authority of the State of New York is one of the world's greatest hydro-electric developments. When completed in 1962, the project will produce well over 2 million kilowatts of electricity from water that now flows unproductively over Niagara Falls . . . that's enough to supply the household needs of a city the size of Chicago —with over 3½ million population!

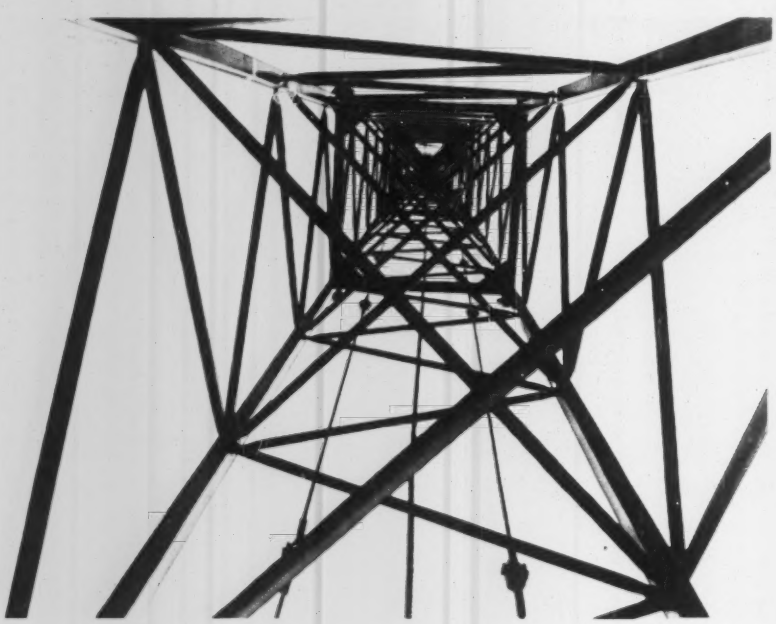
Consisting of five different sections, all phases of this tremendous job are now under contract. Although much of the work is still in the preliminary stage there are Euclids on every section—a total of 178 of them already! With many millions of tons of rock excavation to be moved, Rear-Dump "Eucs" predominate, but big Bottom-Dumps and "Twin" Scrapers are also being used. Contractors on 4 of the 5 sections have purchased a total of 106 new R-27 Euclids for their work. With 325 or 335 h.p. engine, 4-speed Torqmatic Drive, converter lock-up, and 18.00 x 25 tires all around, this new "Euc" moves 27-ton loads on steep grades and tough hauls.

These contractors are using "Eucs" on all 5 sections:

Merritt-Chapman & Scott Corp.	64
Channel Constructors (Peter Kiewit Sons Co., Perini Corp., Morrison-Knudsen Co. Inc., and Walsh Const. Co.)	37
Gull Contracting & L. G. Defelice	36
Edw. Balf Co., Savin Bros., D. W. Winkelman	41

Euclid equipment has proved its ability to maintain high production at low cost for over 25 years . . . on big, rush projects like this one and on smaller mining and construction operations, too. For reasons why "Eucs" are *your* best investment see your Euclid dealer before you figure that next job!

EUCLID
Division of General Motors Corp.
Cleveland 17, Ohio



Tetrahedron Ups Boom Height

Link-Belt "Hi-Lite" booms and jibs add 20 to 60 ft of usable height for a maximum length of 200 ft; the manufacturer states.

The company's new 40-ton HC108A crane is designed to lift and handle, unassisted, 200 ft of boom and jib. The 35-ton HC98A will handle 180 ft; the 30-ton HC88A, 160 ft.

The booms and jibs incorporate an adaptation of the tetrahedron—a geometric figure made up of four triangular sides. The company considers this to be the strongest figure applicable to crane boom design.

A series of these interrelated figures locks all members into an extremely rigid structure that is fully braced against loads in every direction, the manufacturer claims. The design is said to virtually eliminate the whipping and swaying experienced when swinging heavy loads with conventional long booms.

High-strength, lightweight tubing is used for the square tubular chords and the round tubular internal cross-bracing. A deep box section—44 inches square—is said to give extra strength for more capacity at extreme radii.

For long booms (130 ft and over), midpoint suspension cables reduce deflection during raising. A special gantry is also furnished to increase angle of support between boom-hoist cables and boom, and so reduce compression loadings.

The new cranes offer: Speed-O-Matic power hydraulic controls; reversing clutches for either or both main drums; independent rapid boom-hoist with boom-lowering clutch; pin-connected crane boom swing brake; retractable high gantry; and hydraulic counterweight removal jacks.

Their carriers feature: hydraulic power steering; removable front and rear outrigger boxes and beams; hydraulic controlled outrigger jacks and beams; planetary rear axles and four-axle carriers. Link Belt Speeder Corp., Cedar Rapids, Iowa.

Epoxy Paste Cures Hard Under Wet Conditions

A new epoxy paste will cure firm and hard in completely wet locations.

"Epocast 546" in combination with Hardner 9514 will cure in such locations as sewer pipes, underground installations, wet concrete and in marine areas.

The paste may be trowelled or squeezed into position. It develops good adhesion to clay pipes, concrete products, stone metal and other materials. Hardening takes place in several hours, even under moist conditions. Furane Plastics Inc., 4516 Brazil Street, Los Angeles 39, Calif.

Tiny Magnifier Measures Small-Parts Dimensions

Small parts and objects now can be measured with a pocket-size scale-magnifying device.

The "Finescale Magnifying Comparator" can duplicate at low cost many of the functions of projection-type optical comparators, according to the manufacturer. The tiny magnifier needs no additional light source; it compares the part under measurement with a transparent dimensional-scale pattern, revealing plus or minus measurement.

In metals production, the Comparator can check radii, angles, chamfers, threads, small holes, lineal, radial and tangent dimensions, and odd shapes. It also can check gages, templates, layouts, forms and sizes of punches, and dies, and shows exact amount of wear to be corrected on cutting tools.

The Model D, with carrying case, is equipped with 4 pairs of reticles that measure 0.5 in. in 0.005 in. increments; ½ in. in 64ths; 15 mm in 0.1 mm divisions; full circle protractor in 1 deg increments. It costs $18.50 delivered. Other reticles for measuring holes, thread pitches, radii, widths, and center finder may be obtained at $1 per pair. Finescale Co., 218 S. Western Ave., Los Angeles 4, Calif.

Space Heater Is Available With Thermostat Control

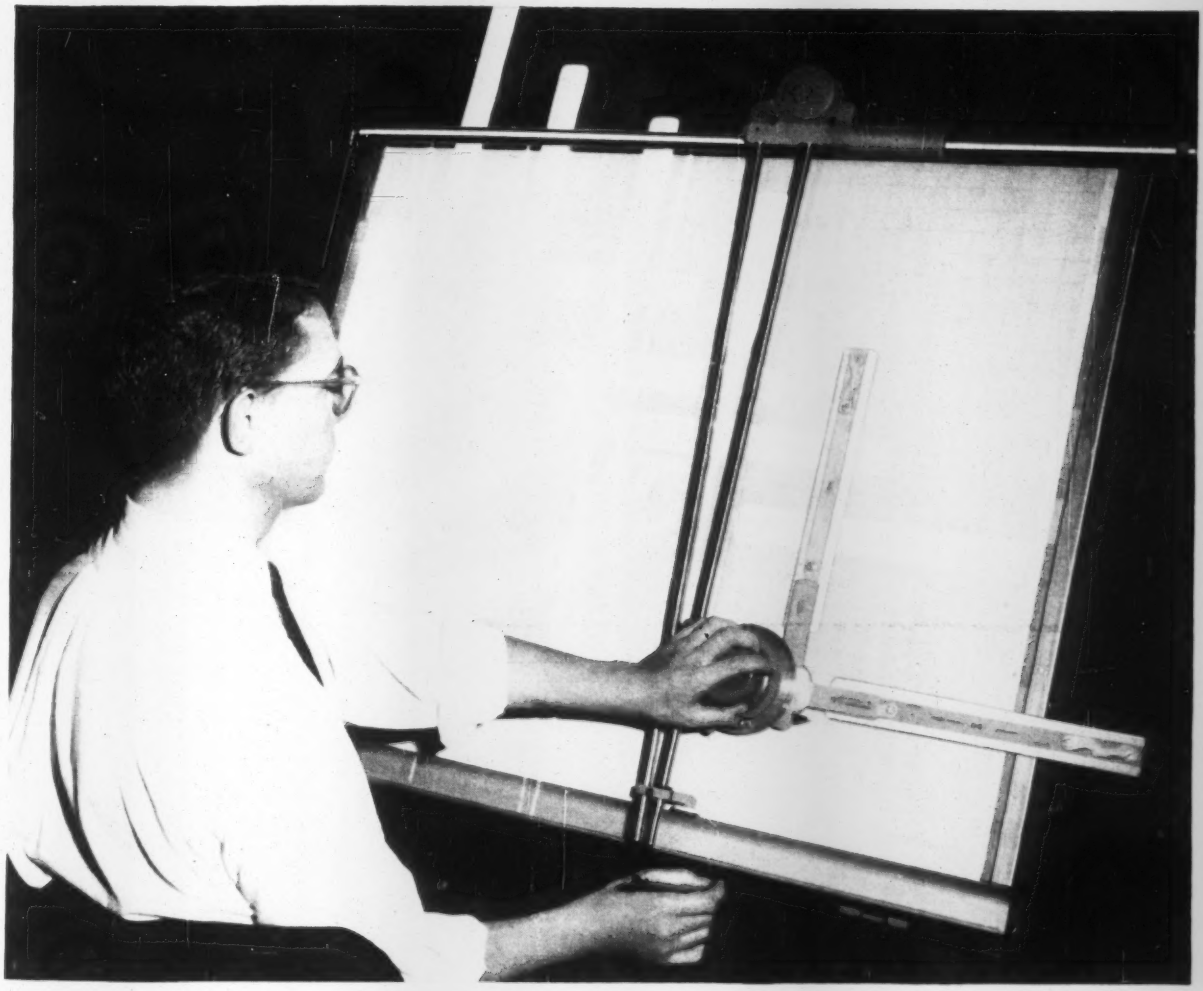
Thermostat control to maintain preset temperatures automatically is now available on a portable space heater used for thawing aggregates, curing concrete, paint-drying and construction heating.

The automatic thermostat is on the electric-powered Series 300 Summeraire Portable Heater. The control is especially helpful for protecting construction projects and equipment during winter nights without the help of additional manpower. Once set, the thermostat-controlled space heater will prevent freezing of concrete or equipment despite sudden and severe temperature drops.

Operating at full capacity, the Summeraire "300" will deliver hot dry air at the rate of 2,400 cfm with a temperature rise of 170F.

It burns only 2¼ gal of low-cost fuel oil or kerosene per hour. A 25-gal tank provides ten hours of operation without refilling. The blower is powered by a ½-hp, 110-volt, single-phase ac motor. Clayton Manufacturing Co., El Monte, Calif.

New Products continued page 59



...for as little as $148.50

New K&E Paragon Auto-Flow gives you faster, easier drafting 5 ways...

The first time you use it, you'll know that K&E's light-weight Paragon® *Auto-Flow*™ Drafting Machine is a truly great advance in working ease and range. Here are 5 *specific* reasons why.

It's more versatile. Stays in perfect balance at any board angle, from vertical to horizontal. No adjustments needed, except a simple turn of a tension spring wheel for angles below 15 degrees.

It's more compact. The balance is built right into the machine itself. There's no need for counterbalances that project over the top of the board.

It's better made. Glides smoothly and easily on finely-ground, stainless steel rails with K&E precision and quality in every detail.

It's more adaptable. You get a full sweep of every size of board.

It's far easier to use. The scales move smoothly, at the slightest touch. Long lines up or across can be drawn in a single motion. Scales lock in place to eliminate "drift". Greater rigidity produces truer lines.

The 30" by 40" *Auto-Flow* costs only $148.50 . . . the 36" by 60" only $160. All standard sizes; left-hand models available. Mail coupon for details. 1265

KEUFFEL & ESSER CO. Dept. EN-1, Hoboken, N. J.

☐ Please send information on the new K&E Paragon *Auto-Flow*. ☐ Please arrange a demonstration for me.

Name & Title: _____

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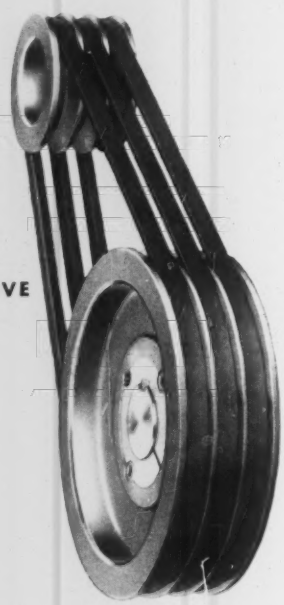
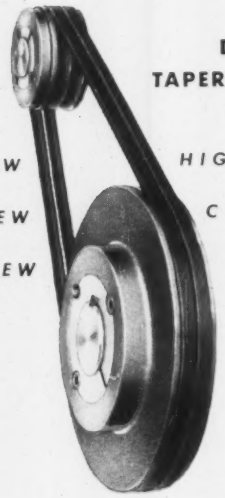
Announcing

an entirely new line of V-Belt Drives.....

DODGE Dyna V



CONVENTIONAL TAPER-LOCK DRIVE



DYNA-V TAPER-LOCK DRIVE

NEW HIGH CAPACITY

NEW COMPACTNESS

NEW SAVINGS IN COST

COMPARISON, ILLUSTRATED ABOVE — 3 HP, 1750 RPM, 2.41 TO 1 RATIO

	BELTS		SHEAVES			CENTER DISTANCE	HP	WEIGHT (LBS.)	COST	
	Number	Size	O.D. Driver	O.D. Driven	Width				Per hp	Per Drive
CONVENTIONAL TAPER-LOCK DRIVE	3	A42S	4.15"	8.95"	2½"	12.3"	4.62	24.7	$5.91	$27.38
DYNA-V TAPER-LOCK DRIVE	2	3V400	3.35"	8.00"	1 3/32"	10.8"	5.0	18.0	$4.50	$22.50
% SAVING *Savings vary with different sized drives*			**19%**	**10%**	**56%**	**12%**	+	**27%**	**23.8%**	**17.8%**

Dyna-V Drives are sensationally compact. They are capable of handling up to three times as much horsepower in a given space. Dyna-V opens vast new possibilities for better, more economical machine design. And, in most instances, *Dyna-V costs less!*

Narrower grooves, to match stronger, narrower Dyna-V Belts, greatly reduce the face width and the weight of Dyna-V Sheaves. Cost is lowered. Smaller diameter sheaves and shorter center distances multiply savings.

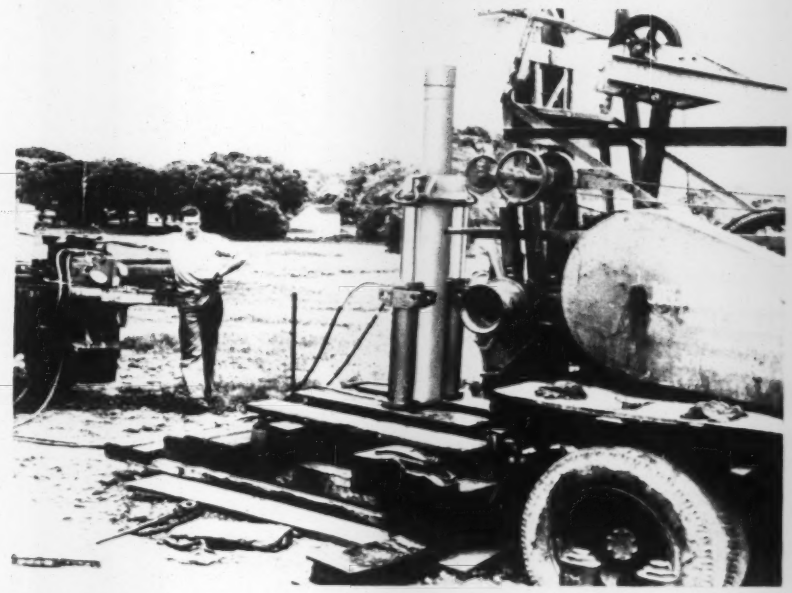
Dyna-V Sheaves decrease shaft overhang—increase bearing life. The new dimensional stability of Dyna-V Belts solves the problem of belt matching. Every belt carries its full share of the load.

Dyna-V Drives will be available for capacities from 1 to 1500 hp. Ask your Dodge Distributor. Or write us for new Dyna-V Bulletin.

DODGE MANUFACTURING CORPORATION, 6900 Union St., Mishawaka, Indiana

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."



HIGH-PRESSURE PUMP on truck bed runs jacks to extract well casing.

Casings Pulled Fast, Smooth

Well casings are pulled eight times faster than with previous methods when Greenlee's new packaged unit is used, the manufacturer claims.

The package consists of hydraulic jacks powered by a high-pressure (10,000 psi) pump driven by a gasoline engine. Two or more jacks are used to meet job requirement requirements.

In one instance, 8 ft of 8 in. casing were pulled in 30 minutes, the manufacturer states. In addition, there was no excess strain on either the casing or threads since it was removed with a steady and uniform pull.

The pump is equipped with a four-way valve that selects a high-pressure advance stroke or a low-pressure return stroke that brings the jacks back to starting position. Each power stroke is 20 in. long. Gage and charts are available to prevent overstress of casing.

The jacks are adaptable to casing clamps currently in use, the maker notes. GREENLEE TOOL CO., ROCKFORD, ILL.

Spreader Works in Two Fields

A dual-purpose sand spreader can be used for highway seal-coating in summer and de-icing in winter. It is mounted on any standard dump truck.

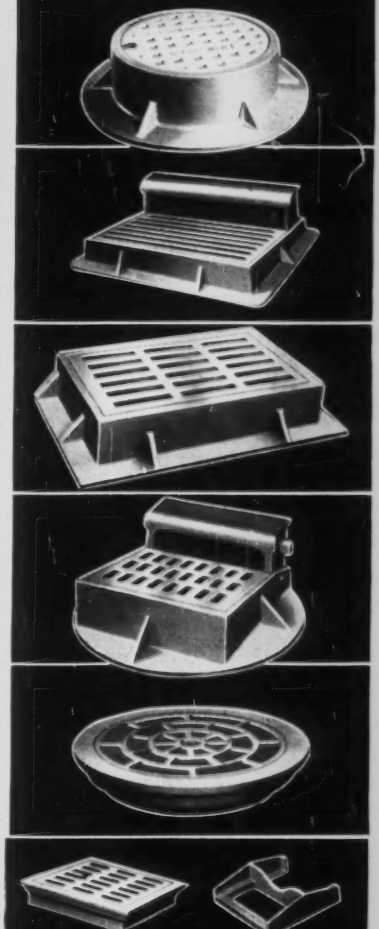
An electrical control panel permits the driver to regulate material from the dashboard of the truck. An adjustable spinner regulates width of spread in four steps from 8 to 40 ft. The spreader unit is powered by an 18-hp air-cooled engine. FOX RIVER TRACTOR CO., ROAD MACHINERY DIV., 1020 N. RANKIN ST., APPLETON, WIS.

(New Products continued page 60)

NF

CONSTRUCTION CASTINGS OF

★ SOUND QUALITY
★ SUPERIOR FINISH
★ SOLID VALUE
DELIVERED ON TIME



Patterns on hand for over 15,000 different Gray Iron and Ductile Iron construction castings.

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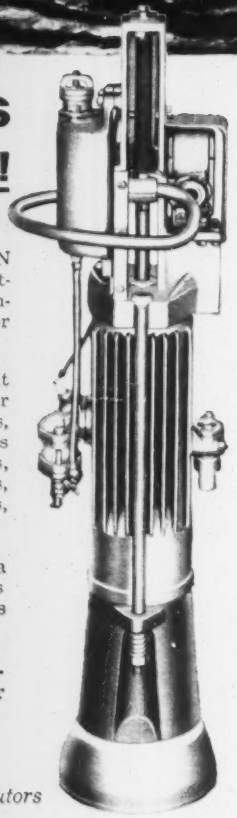
HIGH DEGREE SOIL COMPACTION

BARCO RAMMERS are THE ANSWER!



YOU can't get *high degree* SOIL COMPACTION by "patting it" or "shaking it." For deep, penetrating force to produce 95%, 97.5%, or even 100% compaction, Barco Rammers are THE ANSWER. For many soil conditions, they are the only answer.

High degree soil compaction is worth every cent it costs. Barco Rammers are especially effective for compacting fill in restricted areas—close to walls, culverts, abutments, around footings, and in trenches — on all kinds of construction jobs: Toll Roads, Freeways, and Highways; Air and Missile Bases, Hydroelectric Power and Flood Control Dams, Bridges, Buildings, and Housing Developments.

ONE MAN OPERATION—On area tamping, one man can average 20 to 30 cubic yards of fill per hour. On 18" trench backfill, using lifts up to 24", the rate is 360 to 600 feet per hour.

ASK FOR A DEMONSTRATION—We will be glad to arrange a demonstration for you; see our nearest distributor or write.

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BARCO RAMMER *for High Degree Soil Compaction*
BARCO-VIBRA TAMP *for Granular Fill and Bituminous Surfacing*

. . . New Products

Concrete Mixing Trucks Keyed to Weight Limits

Two mixed-in-transit concrete trucks, one with an extra heavy front axle, are designed to meet special area weight restrictions.

The C6-547 is rated at 54,000 lb gross vehicle weight, with an 18,000 lb front axle and rear tandem axles at 36,000. The truck is said to carry maximum legal loads in areas that permit upwards of 49,000 lb gross vehicle weight on a three axle truck—but where weight on the rear axles combined is limited to 32,000 lb.

The other, Model C6-405, is designed to carry maximum legal loads in areas where the legal gross vehicle weight is limited to 42,000-44,000 lb and where 32,000 lb loads on the tandem rear axles are permitted. Gross vehicle weight is 44,000 lb, with 12,000 lb on the front axle.

Both models are six-wheel-drive trucks. FOUR WHEEL DRIVE AUTO CO., CLINTONVILLE, WIS.

Guard Against "Kick-Back" Built Into Safety Crank

The Win-Well safety crank is designed to eliminate the "kick-back" that is sometimes encountered in starting engines. It is said to fit any engine that is started by rope or crank.

The new crank has four cams that are spring-loaded against the shaft hub. This allows the crank to turn in one direction only. When the engine kicks back, the cams jam against the hub, stopping the kick back instantly, the manufacturer states.

A friction clutch allows the engine to move in a reverse direction, preventing damage to the crankshaft or adaptor. WIN-WELL MFG. CO., TULSA, OKLA.

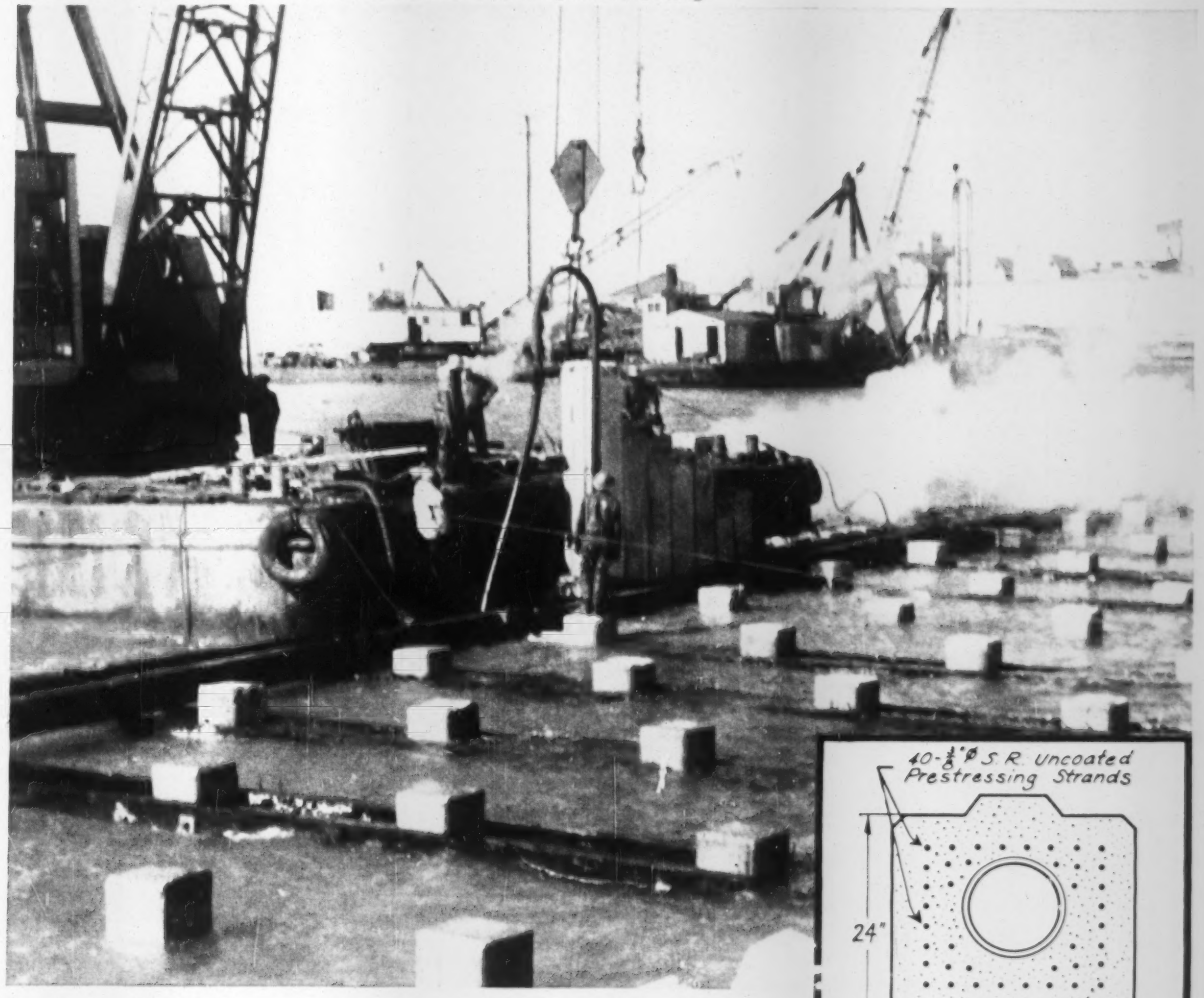
Liquid Washer Available in Handy Capsule Form

A liquid washer that "fits" all sizes and types of threaded fasteners is now available in a polyethylene squeeze capsule. One drop of the Loctite sealant in the threads locks the parts together.

This new package of Loctite replaces a handful of different sized lockwashers. Liquid lockwashers can be furnished with knocked-down equipment or in spare-parts kits doing away with several different sizes of lockwashers.

Each capsule contains enough Loctite to secure five $\frac{1}{4}$ in. nuts or one $\frac{3}{4}$ in. nut, or seal a 1 in. threaded hydraulic connection. AMERICAN SEALANTS CO., 103 WOODBINE ST., HARTFORD 6, CONN.

Here piles are being driven through a template to assure proper alignment and fitting.



Cross-section detail of a combination sheet and bearing pile.

Prestressed Concrete Piles For C&O Railway Bulkhead

Part of the new Chesapeake and Ohio Railway facilities at Newport News, Virginia, is a 650 ft long bulkhead and relieving platform. Built by the Tidewater Construction Corporation of Norfolk, Virginia, it consists of interlocking prestressed piles 63 ft long and 24 inches square. These function simultaneously as sheet and bearing piles. In addition, some 453 bearing piles 20 inches square and varying in lengths from 60 to 65 ft are going into the finished project.

Among the benefits of prestressed piles – currently being taken advantage of by many State Highway Departments and State Maritime Commissions are: ease of handling and the ability to withstand driving shocks without cracking. Prestressed piles can be easily carried by attachments at one or two points on the pile, while other concrete piles of like dimensions would require three or four lifting points. Most important, prestressed piles can withstand *severe* driving conditions without cracking or spalling. This quality results in a crackless pile which is consequently impervious to freezing and thawing.

The great and practical economies of prestressed concrete in all manner of construction are values that designers and builders the country over are enjoying with increasing frequency. John A. Roebling's Sons Corporation, right from the introduction of this method in this country, has done important and informative work on all its phases; design, prestressing elements, casting beds and development of prestressed strand. We invite inquiries of any "prestressed" nature and will be happy to enlarge your knowledge and work with you in every way possible. Please address your requirements to Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation

Steeltex Saves $10,000 And 24 Working Days

Architect Cites Double-Duty Package—Form And Reinforcing; Contractor Likes Economy, Versatility Of Pittsburgh Steel Company's Steeltex In Luxurious $1.5 Million Apartment-Hotel

Double-barreled savings—$10,000 on cost of material and 24 working days—came through use of Steeltex in constructing the $1.5 million Presidential Apartment-Hotel in Evanston, Ill.

Steeltex—the wire mesh reinforcing that carries its waterproofed form on its back—provided form and reinforcing for 100,000 square feet of concrete slabs covering seven floors and roof of the luxurious apartment-hotel.

Steeltex from Pittsburgh Steel Products Division of Pittsburgh Steel Company was the logical choice for the job, according to Architect Kenneth R. Woods, AIA, and Frederick A. Thulin Jr., AIA.

Mr. Woods and Mr. Thulin are principals of Thulin, Woods & Isensee, Inc., Chicago architectural firm which designed the building. Structural Engineer Herbert M. Miller was consulting engineer for the project. Said Architect Woods:

"I believe Steeltex is the only product of its type for supporting concrete over joists—in this case a two-inch slab with joists on two-foot centers.

"Steeltex' big advantage is that everything comes in one package—the form provided by the waterproofed paper and the reinforcing provided by the wire mesh which embeds itself into the concrete."

• **Appreciates Economy**—Leonard C. Tharnstrom, president of C. A. Tharnstrom & Co. of Skokie, Ill., general contractor, appreciated Steeltex' economy.

"I estimate we saved about 10 cents per square foot on this job by using Steeltex instead of another material."

Steeltex cuts easily and fits quickly around protruding steel column. Said James R. Huiras, field superintendent for subcontractor: "It took three men only three days to install 12,000 square feet of Steeltex on each floor. Sheet material would have taken twice as much time and required an extra man."

Ready for pouring, Steeltex placed snugly around column is examined by (kneeling) Leonard C. Tharnstrom, president of C. A. Tharnstrom & Co., general contractor; Architect Kenneth R. Woods of Thulin, Woods & Isensee, Inc., and (standing) Pittsburgh Steel Products Salesman William L. Dolan. Mr. Tharnstrom estimated his firm "saved about 10 cents a square foot by using Steeltex instead of other material."

"On top of that," Mr. Tharnstrom added, "Steeltex brought savings with a minimum loss of concrete because the paper reduces the amount of concrete drippage to the floor below."

Another built-in Steeltex advantage —ease of handling and installation— received enthusiastic approval from workmen who installed the Steeltex.

James R. Huiras, field superintendent for sub-contractor Bo-An Steel Erecting Co., Chicago, has used Steeltex many times on various types of construction.

• **Likes Steeltex' Speed**—Speed of installation rates number one on the list of advantages outlined by Mr. Huiras.

"It took three men only three days to install 12,000 square feet of Steeltex on each floor of this building," declared Mr. Huiras. "A sheet material would have taken twice as much time and required an extra man.

"What helped us make such a fast installation was Steeltex' light weight and easy handling. It's easily unrolled, cut to length, tightened and clipped. Men can walk on Steeltex while new sections are laid, too.

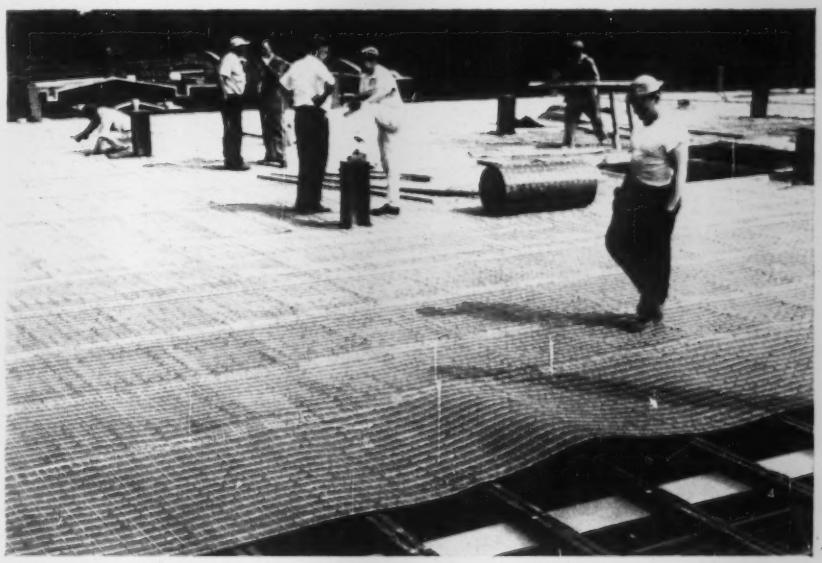
"Another good point is that Steeltex fits tightly around columns. It takes only a few minutes to cut Steeltex to fit. After that, you can pour right away."

All the built-in advantages of Steeltex and more—sales engineers to help solve your construction problems—can be put to work for you, too.

How? Just call the nearest Pittsburgh Steel Products district sales office.

See locations at right.

Let Steeltex help provide better construction at substantial savings for you. Call today . . . tomorrow you'll be glad you did.



Continuous reinforcing of Steeltex from section to section with a minimum of side lapping and end lapping cuts costs and speeds installation. Heavy waterproofed paper provides form, prevents drip-through. Wire mesh embedded in concrete gives uniform reinforcing.

▶ **See Sweets Catalog Section 2-B**

Steeltex®

Pittsburgh Steel Products

a division of Pittsburgh Steel Company

Grant Building • Pittsburgh 30, Pa.

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Atlanta	Cleveland	Dayton	Los Angeles	Pittsburgh
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		Houston	Philadelphia	Warren, Ohio

In Election's Wake: New Faces

Tremors from the last election are beginning to shake up important state construction posts this month as 21 new governors move into office.

Top-level changes have already been announced, or are imminent, in Alabama, California, Georgia, Nebraska, Nevada, New York, Ohio, Oklahoma, Oregon, Tennessee and Pennsylvania. In many other states new construction faces will be appearing as soon as the incoming governor finds his new desk.

Here are the current and coming changes as gathered by ENR reporters.

• **Alabama**—Gov.-elect John Patterson has appointed former State Sen. Sam M. Engelhardt Jr., of Macon, as state highway director succeeding Herman Nelson. Mr. Engelhardt will take over the $15,000-a-year post on Jan. 19. He had worked in the department from 1933 to 1937.

• **California**—Democratic Gov.-elect Edmund G. Brown is keeping Harvey O. Banks as director of the department of water resources. Although originally appointed by Republican Gov. Goodwin Knight, Mr. Banks has won bi-partisan confidence for his handling of California's vast water resources program. He will be assisted by Ralph M. Brody, a Sacramento expert on water law, who has just been named deputy director and special counsel to the governor on water affairs. Gov.-elect Brown has named a new director of public works. He is Robert B. Bradford, presently director of the Sacramento Redevelopment Agency.

• **Georgia**—Incoming Gov. Earnest Vandiver has named James L. Gillis to replace Roy Chalker as chairman of the state highway board. Mr. Gillis is returning to a post he held from 1948 to 1954 under Gov. Herman Talmadge.

• **Nebraska**—Gov.-elect Ralph G. Brooks will appoint former Gov. Roy L. Cochran as state engineer. Mr. Cochran, who was governor from 1934 to 1938, had been employed in the department of public works from 1915 to 1934 and was state engineer for the last 12 years of that period. He will replace L. N. Ress, who became a major political target after the interstate highway wage fight (ENR Sept. 18, 1958, p. 188).

• **Nevada**—Gov.-elect Grant Sawyer is expected to appoint William Holcomb to succeed Huston Mills as state engineer this month.

• **New York**—Gov.-elect Nelson A. Rockefeller will make J. Burch McMorran his superintendent of public works. Mr. McMorran will move into the $21,000-a-year job from his present post as chief engineer of the state power authority. Mr. McMorran has played an active role in the St. Lawrence and Niagara power projects.

He's out—Charles M. Noble has resigned as Ohio's highway director.

He stays in—Harvey O. Banks will remain as California's water resources director.

• **Ohio**—Charles M. Noble has resigned his $30,000-a-year job as highway director, effective tomorrow. Gov.-elect Michael V. DiSalle has named consulting engineer Everett S. Preston, former deputy highway director, to the post at a salary "below the $25,000 paid the governor." Mr. Noble's salary and the fact that he was a resident of New Jersey at the time of his appointment had been matters of dissension. Mr. Noble will return to New Jersey to enter consulting practice. The Ohio Society of Professional Engineers has already protested the new governor's intention to reduce the highway director's salary.

• **Oklahoma**—The state highway department was a major target of Gov.-elect J. Howard Edmondson's successful campaign. C. A. Stoldt, head of the department for the past four years under Gov. Raymond Gary, has already resigned. But the highway commissioners, appointed officials, have refused to quit. They say the new governor will have to fire them. The governor-elect has not as yet announced any appointments or firings. He takes office next week.

• **Oregon**—Lewis A. Stanley has been reappointed state engineer for a four-year term by Gov. Robert D. Holmes. His appointment has been approved officially by the Oregon water resources board.

• **Pennsylvania**—State highways secretary Lewis M. Stevens, regarded as a personal choice of outgoing Gov. George M. Leader, has asked out of the $20,000-a-year post. Gov.-elect David L. Lawrence, a Democrat, will appoint Park H. Martin, a distinguished civil engineer and a Republican, to the top highway job. Mr. Martin holds an honorary membership in the American Society of Civil Engineers; he is one of only 40 men who have been so honored.

• **Tennessee**—Gov.-elect Buford Ellington has named D. W. Moulton as his state highway commissioner. He'll replace W. M. Leech who resigned Nov. 15. Chief engineer Herbert Bates has been minding the store until the new governor made his selection. Mr. Moulton is presently city manager of Kingston.

• **Rhode Island**—Angelo E. Marcello became state public works director this week—he's the first construction appointee of new Gov. Christopher Del Sesto. Mr. Marcello, a civil engineer, has been with the Callan Construction Corp. since 1939. Gov. Del Sesto, a Republican, will probably hold up on making other appointments until the Democratically controlled legislature ends its annual 60-day session this spring.

(*Men and Jobs Continued page 69*)

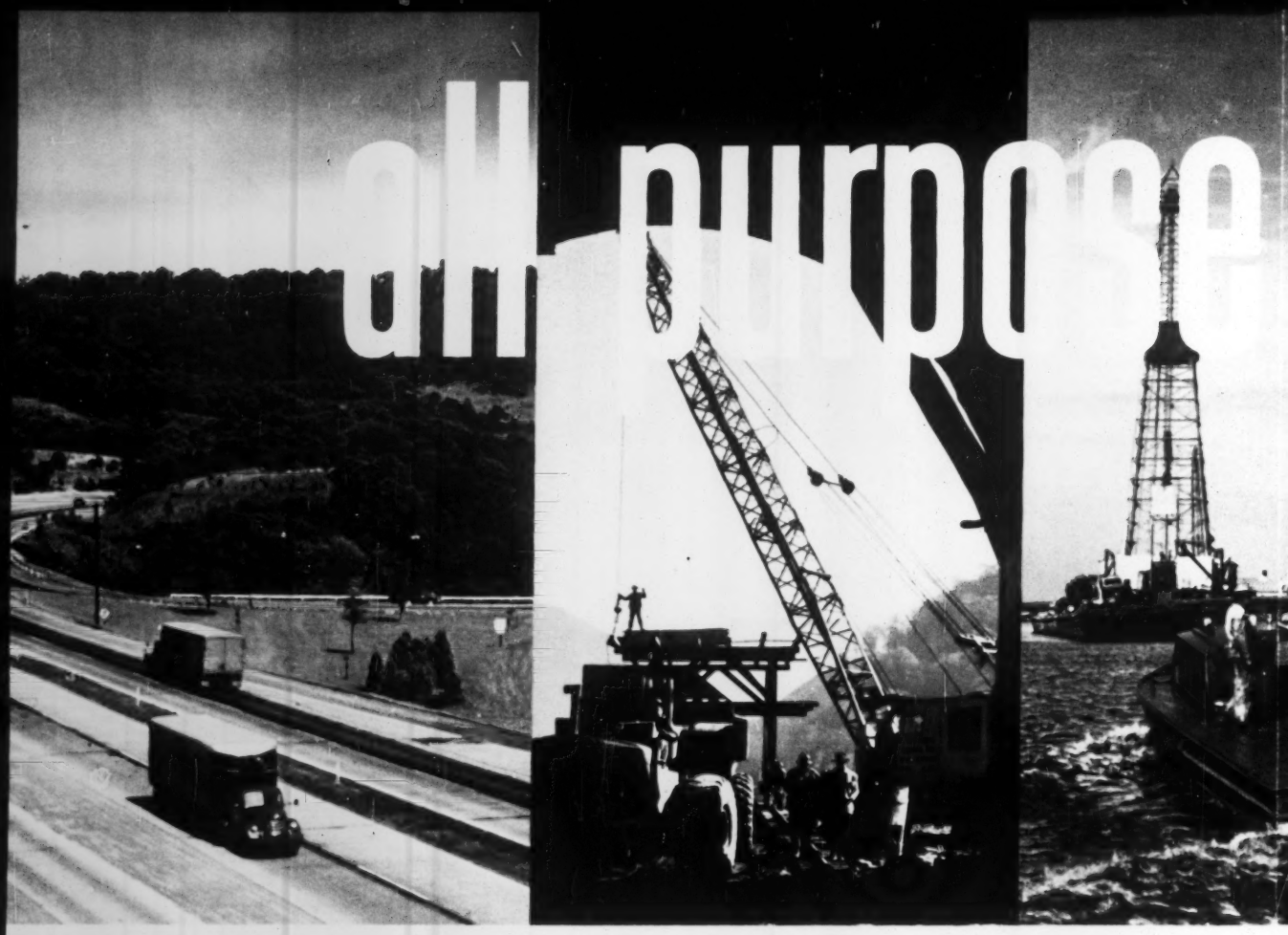
GM DIESEL

A whole new concept in power

all purpose power line

71 110

(20 to 1650 H.P. IN ONLY 3 CYLINDER SIZES — "V" AND "IN-LINE")



GM Diesel combines 8 New Basic "V" and "in-line" engines with

To help industry fill its power needs, GM Diesel engineers have developed the most comprehensive power concept since they pioneered the small 2-cycle Diesel.

Using only 3 cylinder sizes, they have more than doubled the number of basic engines – vastly increased the horsepower range – yet maintained the family relationship and parts interchangeability for which GM Diesels are famous.

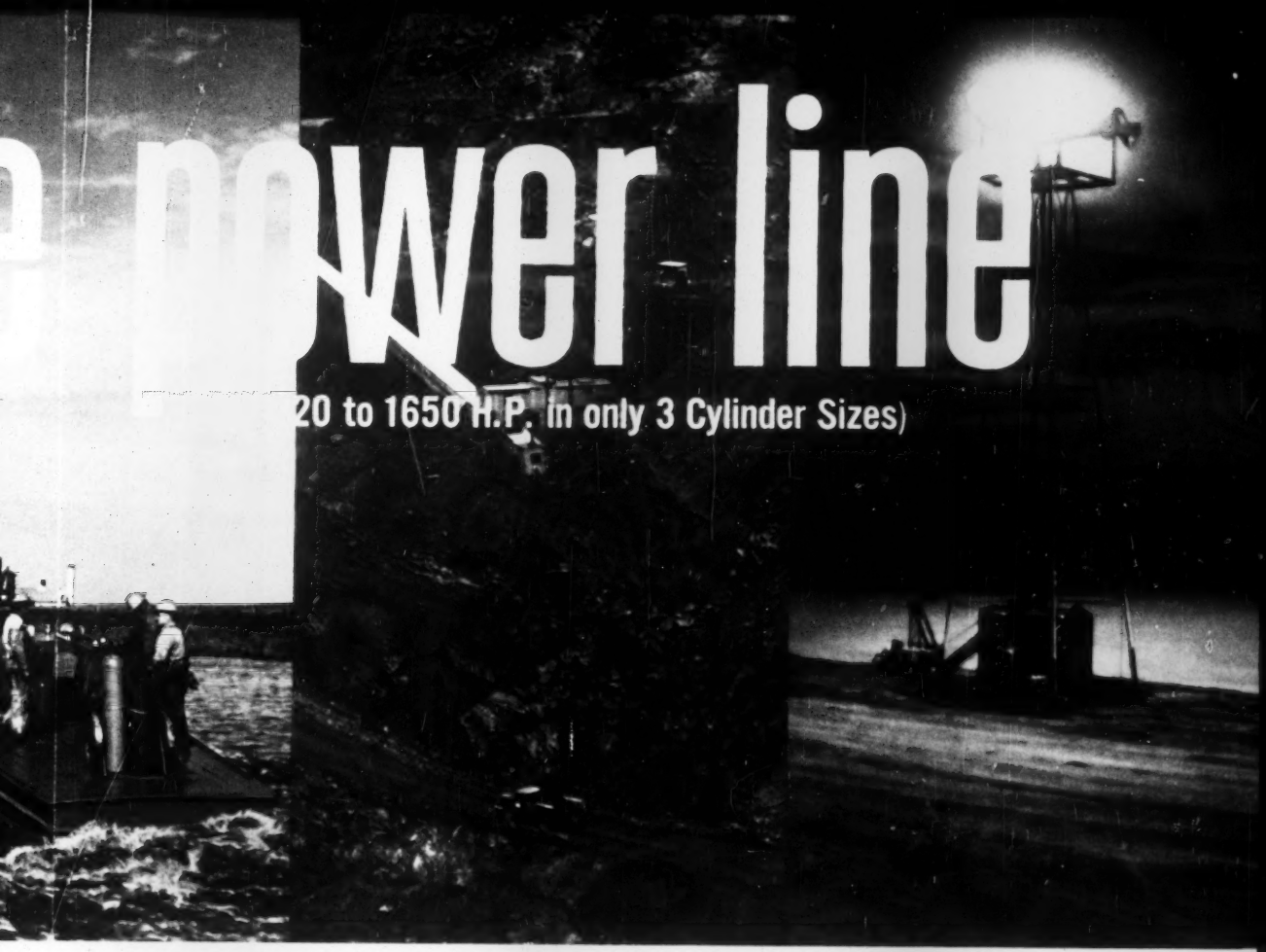
Each engine features the ultimate in *compactness, lightweight, high efficiency, durability and inexpensive maintenance.*

Basing their design on that of the versatile and capable GM Series 71 Diesel, GM Diesel engineers have created 8 new basic "V" and "in-line" engines which will add vastly new power coverage to the present Series 71 and 110.

First, the new Series 53 Diesel—comprising four basic "V" and "in-line" engines—is a smaller, more compact version of the famous "71."

Here, at last, in the Series 53, are Diesels which cover the lower horsepower ranges as never before. They hurdle the barriers which have limited the use of Diesel power in a whole host of applications. They offer new opportunities for Diesel power to farmers, boatowners and industrial users by making available GM Diesels particularly suited to their needs. They will pay for themselves amazingly fast when they take over from gasoline engines.

Four new "V-71" engines complete the additions—widen the power range of the "in-line" 71 Series—set new standards for low weight and small size per horsepower. These "V-71"



ith its proved "Jimmy" Diesels

engines bring far more power than ever before possible to the big brutes of the construction, mining, petroleum, logging and marine industries—up to 1650 H.P. when turbocharged.

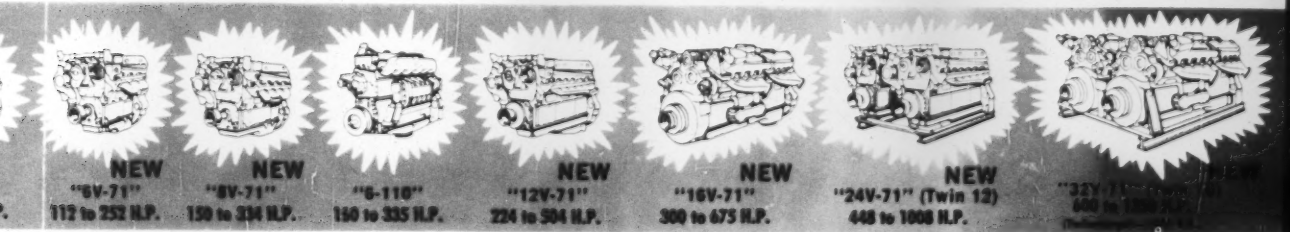
Production has started and complete programming has been established on all new engines. Non-turbocharged engines will be available first, followed later by Turbopower models to complete the power range.

So—now more than ever before, it pays to standardize on GM Diesel power. For whatever you want a Diesel to do, there's a GM Diesel to do it for you—faster, better, at less cost. Truly, here is a whole new concept in Diesel power—the All-Purpose Power Line. Get the full story by writing GM Diesel, Detroit 28, Michigan.

GM DIESEL

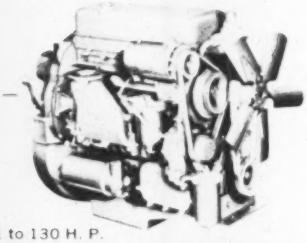
DETROIT DIESEL ENGINE DIVISION
GENERAL MOTORS, DETROIT 28, MICH.

In Canada: GENERAL MOTORS DIESEL LIMITED, London, Ontario
Parts and Service Worldwide



NOW...A "JIMMY" DIESEL for every power purpose

20 to 1650 H.P. in only 3 cylinder sizes

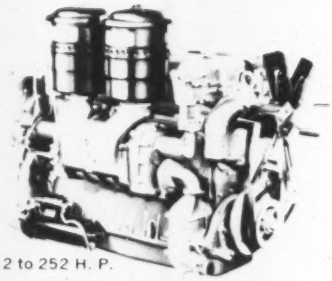


"4-53"—51 to 130 H. P.

NEW SERIES 53

—smaller Diesels millions can use
2, 3, 4 and V6—20 to 195 H. P.

A scaled-down version of the famous Series 71 GM 2-cycle Diesel—identical in design principles—the new 53 Series incorporates the time-proved features of patented GM unit fuel injection and uniflow blower scavenging in more compact, lightweight units. These spacesaving engines open up whole new fields of Diesel usefulness in trucks, buses, and taxicabs, in marine service, as well as in tractors, generators, loaders, lift-trucks and many other types of industrial equipment.

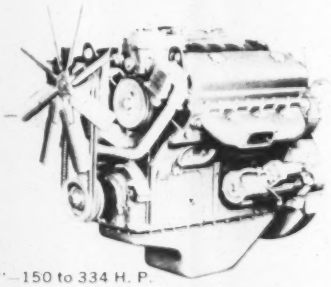


"6-71"—112 to 252 H. P.

SERIES 71 "IN-LINE"

—the versatile, time-proved economy Diesel
2, 3, 4, 6, Twin 4, Twin 6, Quad 6—33 to 1008 H. P.

Never, in industrial history, have there been Diesels as versatile and capable as the Series 71 GM Diesels—built in a wide range of Fan-to-Flywheel, Package Power, Torque Converter, Generator Sets, Economy truck engines and Turbopower models. And, because of GM Diesel's unique power concept—a family of engines featuring unequaled parts interchangeability—these time-proved "Jimmy" Diesels become even more valuable as key components of the GM Diesel All-Purpose Power Line. Today's "71" engines incorporate the results of 20 years' continuous improvement.



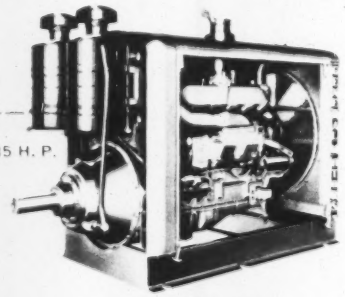
"8V-71"—150 to 334 H. P.

NEW "V-71"

—higher horsepower in smaller, more compact units
V6, V8, V12, V16, Twin V12, Twin V16—112 to 1650* H. P.

The new V-71 "Jimmy" Diesels are a further dramatic illustration of GM Diesel's mighty new power concept—rounding out the All-Purpose Power Line—yet retaining the GM family relationship and parts interchangeability. Here are engines destined to give you a better investment-earnings ratio than any you have ever had before. Diesels that boast the ultimate in compactness, light weight, high efficiency, durability, inexpensive maintenance and parts interchangeability.

*Turbopowered



"6-110"—160 to 335 H. P.

SERIES 110

—a favorite on heavy-duty jobs
6-110 and Twin 6-110—160 to 670 H. P.

Renowned for its ability to get big jobs done faster at lower cost, the GM "6-110" has stepped in and taken over thousands of jobs for every kind of business—done those jobs as never before—greatly expanded the usefulness of Diesel power. Built in single- and multiple-engine units, the Series 110 engine is available for a wide variety of heavy-duty applications in earth-moving, oil-field, railroad and marine equipment.

GM Diesel
Detroit 28, Michigan
Send me detailed information on new GM Diesel All-Purpose Power Line. I am interested in new Series 53 (.....), Series 71 "in-line" (.....), new V-71's (.....), Series 110 (.....).

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New York Keeps Moses On His Mountain of Jobs

New York City has decided to keep Robert Moses on the job beyond the mandatory retirement age. The city thereby extends a distinguished career, saves itself a bundle of money and sidesteps a possible personnel crisis.

Mr. Moses, who turned 70 recently, is the city's $25,000-a-year Park Commissioner. But he also serves, without pay, as City Construction Coordinator, member of the City Planning Commission, chairman of the Triborough Bridge and Tunnel Authority, chairman of the Mayor's Committee on Slum Clearance and member of the Youth Board.

These duties leave Mr. Moses time for only three other jobs; he is chairman of the New York State Power Authority, chairman of the Long Island State Park Commission and chairman of the State Council of Parks. These posts are also unpaid.

NSPE Nominates Slate Of Officers for 1959-60

Harold A. Mosher will be next president of the National Society of Professional Engineers.

He is assistant director of engineering for Eastman Kodak Co. at Kodak Park, Rochester, N. Y. And he now serves NSPE as vice president from his region.

Mr. Mosher is a mechanical engineer who previously has been associated with Bell Telephone Laboratories. He has served as chairman of the membership committee in NSPE.

Also on the slate of officers for the year beginning next July are six regional vice presidents: Northeast, W. E. Christian; Southeast, R. K. Rouse; Central, L. E. Easly; North Central, B. H. Backlund; Southwest, N. E. Hull; West, G. E. Zelhart. R. B. Allen is the nominee for re-election as treasurer.

John B. Hughes Retires as Continental Service V. P.

Col. John B. Hughes has retired as vice president of Continental Service Co. of San Francisco, construction subsidiary of Bank of America.

Col. Hughes had been with the firm and its predecessor—Capitol Co.—for ten years.

A 1918 graduate of West Point, Col. Hughes retired from the Army in 1948 where his last assignment was as division engineer of the Western Oceans Division. During his military career he served as professor of military engineering at West Point. And at the end of World War II he was the U. S. member of a four nation-international board assigned to restore transportation facilities in Germany.

Photogrammetry Unit Is Being Set for State

The North Carolina Highway Department is setting up a photogrammetry department to do aerial surveys.

It has hired Ed Page, a photogrammetry engineer, to head the department. It will have 10 to 15 employees.

The department has already ordered an $83,500 airplane to use in the surveys. It expects to save money in the long run since aerial mapping is now done by contract.

The plane will carry, in addition to the pilot, a photographer and two engineers to assist in the work.

Careers

Business

William H. Owen, assistant director of the division of sanitary engineering of the Tennessee Department of Public Health, has become an associate member of Barge, Waggoner & Sumner, consulting engineers, Nashville, Tenn.

P. E. Coe and H. W. Van Loo have formed the partnership of Coe and Van Loo, consulting engineers, with offices in Yuma and Wellton, Ariz.

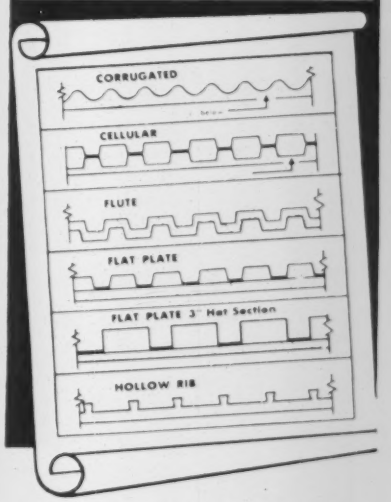
Woodrow L. Burgess has been appointed assistant director of engineering for the Master Builders Co., Cleveland.

C. F. Replogle, of Circleville, Ohio, has been elected president of the Ohio Contractors Assn., succeeding **Charles W. Frysinger**, of Columbus.

Joseph Dentici, vice president of Daniel Construction Co., Birmingham, has been elected president of the Alabama chapter of Associated General Contractors. He succeeds **Todd Robins**.

George A. Hess is now associated with J. Y. Long Co. Engineers of Oakland, Calif., as a Project Engineer. Mr.

WHICH OF THESE STEEL FLOOR SYSTEMS SERVES YOUR PURPOSE BEST?



No matter which system you adopt, here's the biggest news in construction today!

NEW ZONOLITE®

DIRECT-TO-STEEL FIREPROOFING BONDS DIRECTLY TO UNDERSIDE OF STEEL FLOORS!

- Saves Time
- Cuts 7" of Height per Story
- Gives 3- and 4-hr. Fire Ratings
- Adds Acoustical Benefits
- Simplifies Tenant Changes

Quickly applied by hand or machine, Zonolite fireproofing bonds directly to the underside of steel floors. Slices days off former schedules. Permits use of lighter, less costly structural members. Saves 7" height per story—fits a 14-story building into 13-story height without reducing room height.

Zonolite fireproofing provides 3- and 4-hour fire ratings. Has exceptional noise-reducing character, often making further sound conditioning needless. May be left "as is" to provide finished ceiling. Because it's up high, out of the way, tenant changes may be made without cutting through Zonolite fireproofing.

MAIL THIS COUPON

for new authoritative data on direct-to-steel fireproofing

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Without obligation, send me specifications and data sheet PA-35 on Zonolite Direct-to-Steel Fireproofing.

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SERVICISED POLYVINYL PLASTIC WATERSTOP DUMBBELL TYPE

EASY INSTALLATION
simple field splicing

RESISTANT TO ACIDS
alkalis, petroleum products

DUMBBELL DESIGN
for superior retention in concrete

Servicised Polyvinyl Plastic Waterstop—made from high grade polyvinylchlorides and plasticizers—is an extremely stable material that is easy to handle, install and splice in the field. It has the flexibility, durability and superior aging qualities necessary in critical waterstop applications.

Servicised Polyvinyl Plastic Waterstop is available in 4", 5", 6", and 9" Flat Dumbell, and 9" Centerbulb types. 4" and 5" sizes are supplied in lengths of approximately 100 lineal feet; 6" and 9" sizes in lengths of approximately 50 lineal feet.

Special Polyvinyl Plastic Waterstop circular has complete details and physical data. Write for it today.

QUICK, EASY FIELD SPLICING

1 Ends to be spliced are squared.

2 Place ends on heated plate and hold firmly until material begins to melt.

3 Join ends immediately, maintain slight pressure until material cools.

4 Completed splice becomes integral part of waterstop.

SERVICISED PRODUCTS CORPORATION
6051 WEST 65th STREET · CHICAGO 38, ILLINOIS

. . . Men and Jobs

Hess was formerly vice president and chief engineer for Rosener Engineering, Inc., San Francisco, having served in several capacities in the Rosener organization since 1945.

Public Works

Otto W. Tidwell, resident engineer for the Corps of Engineers at Jackson Lock and Dam, Coffeeville, Ala., has retired.

Godfrey W. Collins has been named city engineer of Coldwater, Mich.

Col. Jerrold D. Snow will become district engineer for the Corps of Engineers at Norfolk, Va., effective in March.

William A. Ripatte will be city planning director for Kalamazoo, Mich. He resigned as senior planner of the Dayton, Ohio, Planning Board, effective January 2, to take the new post. Mr. Ripatte came to the Dayton board in 1949, upon graduating from Michigan State University.

Lloyd B. Reynolds, assistant office engineer of the California Division of Highways, has retired after more than 30 years service with the state. He received his engineering degree from the University of California.

V. L. Fiedler has been appointed by the Wisconsin State Highway Commission as district engineer in the Madison district office. He will replace **J. C. Jones,** of Madison, who will retire June 1, 1959, after 36 years with the commission.

Gordon E. Bodien has been appointed city engineer for Minneapolis. He succeeds **Hugo G. Erickson,** who is resigning to enter private business.

Associations

Prof. Carl E. Kindsvater, civil engineering faculty of Georgia Institute of Technology, has been appointed chairman of the Hydraulics Division of the American Society of Civil Engineers.

W. E. Long, Jr., chief engineer of the pollution-control section of the North Carolina Board of Health, was elected chairman of the North Carolina Sewage and Industrial Wastes Association.

Milton Wolf, of Zehman-Wolf & Sheiman, Cleveland, has been elected president of the Home Builders Association of Greater Cleveland. He succeeds **Louis E. Molnar,** who becomes treasurer.

Mel Hord will become secretary-manager of the Mountain Pacific chapter of Associated General Contractors after having served as labor relations director since May. He will succeed **Will H. Landaas,** who is leaving the chapter after 11 years to join a construction firm.

Instant-acting electric motors lift apron high, shoot tailgate forward for quick spread on Ford Ord, Calif. clearing and leveling job handled by contractor Phil Calabrese. Spread took average of 12 seconds, with some as low as 7 seconds.

"TERRIFIC" says Phil Calabrese

"A terrific machine!" is the way contractor Phil Calabrese, Monterey, California, describes his LeTourneau-Westinghouse C Tournapull® with 18-yd. Fullpak® scraper. "It moves a lot of dirt fast," he says, "and works in any material."

Typical of the big-volume performance that's made a Fullpak fan of Phil Calabrese is the way his "C" packed in dirt on a recent land-leveling job at Fort Ord, Calif. Clearing a 12-acre site for a new army chapel, the firm had to move 28,000 cu. yds. of root-laced topsoil and sand loam.

3 min. average for 1,000′ cycles

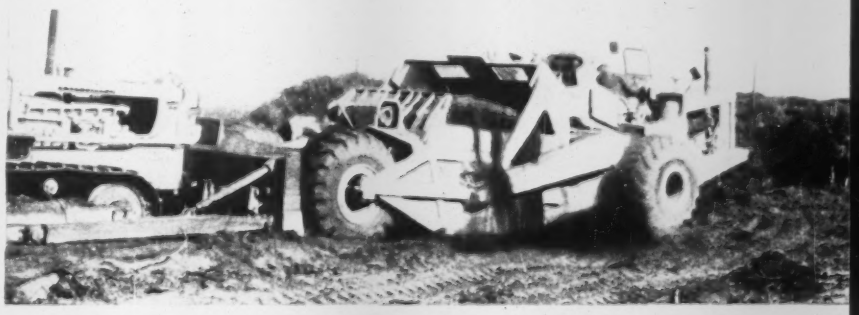
Push-loaded down a 4% grade, the low, wide Fullpak scraper averaged big-capacity loads . . . ran through 1,000′ cycles in less than 3 minutes. Load-time, over 145′, was 48 seconds. Spreading, in 60′, took only 12 seconds. The 282′ return was traveled in just 30 seconds.

Fill areas on the project were soft and spongy, but the C 'Pull* had no trouble getting traction. Whenever wheels started to spin, operator merely flicked dashboard steering-switch alternately left and right. This activated electric kingpin-steer motor, pivoting prime-mover side-to-side — until at least one drive-wheel reached solid footing. From there, L-W's exclusive power-transfer differential applied up to 80% of tractive effort to that wheel, and kept pulling the machine forward.

L-W service pleases owner

Contractor Calabrese is "sold" not only on his L-W machine, but on L-W service as well. Wherever you live, wherever you work, you will find a nearby LeTourneau-Westinghouse Distributor who is proud of his equipment and ready at all times to give the owner prompt and dependable service.

Call *your* LeTourneau-Westinghouse Distributor for practical answers to earthmoving equipment problems. You'll find his fast, rubber-tired L-W machines . . . all competitively priced . . . can do more jobs faster, at lowest-net-cost-per-yard.



"Wonderful machine" is what operator Winston Cassey calls new C Tournapull. He adds: "It's easy-loading and has really good visibility."

*Trademark CP-1563-DCJ-1

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★ Over 100 Photos and Drawings

Here's a non-technical book that provides 68 illustrated pages of the latest methods, procedures and tools for sampling.

This is a "how to" book—an easy-to-follow guide for the builder, construction contractor, civil engineer or architect. If you need fundamental soil sampling information, this book is for you.

For only $1.00, a fraction of the preparation and printing costs, we'll rush you a postpaid copy of "Basic Procedures of Soil Sampling." If not completely satisfied, return the book within seven days, for full refund.

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Here's my check for $1.00. Rush me a copy of "Basic Procedures of Soil Sampling."

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ORDER YOUR COPY TODAY!

MASTER MECHANICS CORNER:

Donald Bond
Missouri Valley Construction Co.
Grand Island, Neb.

"I can pull a Cat fuel injection valve, put in another and have the machine back on the job in a couple of minutes. On rigs of some other makes, it takes an hour or so."

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.
Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Obituaries

Clayton L. Piper, 56, civil engineer with the city of Toledo, Ohio, for 27 years, and the city's first aviation commissioner. He was a graduate of the College of Wooster (Ohio) and had worked with the Michigan Highway department before coming to Toledo. He reorganized and later headed the city's Division of Harbors and Bridges.

In 1940 he was named Commissioner of Engineering, and in that capacity helped plan Toledo's expressway system. When he returned from service in World War II as a major in the Air Force, he became Toledo's aviation commissioner and played an important role in developing the city's $4 million Express Airport. Since 1954 he has designed airfields in all parts of the country.

Alfred M. Lund, 79, Little Rock, Ark. A graduate of Vanderbuilt University, he served as a major in the Army Corps of Engineers during World War I and was a member of the American Society of Civil Engineers. During his career he was resident engineer for the construction of the Broadway Bridge across the Arkansas River at Little Rock and for the construction of the Little Rock-Hot Springs Highway.

David Farquhar, 25, construction prices editor on the staff of Engineering News-Record. Mr. Farquhar, a native of Rockford, Ill., held BA and MA degrees from the University of Chicago and had also done graduate work in economics at the University of Frankfurt in Germany. He had been on the ENR staff for about 14 months.

Edward I. McCaffery, 60, a specialist in sanitation and water supply projects. He was consulting engineer for Kingston, N. Y., and surrounding towns for 25 years. Previously he had been with the engineering firm of Sinborn and Bogert, of New York City. Mr. McCaffery was a graduate of Stevens Institute of Technology.

Earl F. Reagan, 72, Louisville, Ky., engineer. He was a native of Nebraska and graduate of Purdue University in 1905.

William W. Hampton, 54, administrative assistant to the chief locating engineer of the North Carolina State Highway and Public Works Commission. He had been with the department since being graduated in 1927 from the Engineering School of the University of North Carolina.

(Obituaries continued on page 74)

Building an auxiliary air-station for the U.S. Navy, on Highway 39, north of Meridian, Mississippi, Hyde Construction Company, Jackson, Mississippi, used a 210-hp, rubber-tired Tournatractor. Here, Tournatractor dozes clay and sand-fill an average 300 ft. At times, L-W tractor also pulled a compactor over fill.

SPEED is your answer

for widely-scattered tractor work

If your tractor assignments call for a machine that can go to work anywhere . . . anytime . . . without expensive delays waiting for haul equipment . . . check on mobile, rubber-tired, 210-hp Tournatractor®.

This LeTourneau-Westinghouse tractor-on-rubber can *drive* to the next pulling, pushing, or dozing job at a moment's notice. It moves along highways, city streets, or cross-country . . . through sand and mud . . . at speeds to 17 mph. On the highways, it rolls fast enough so that it will not interfere with traffic.

L-W tractor's wide, low-pressure tires straddle railroad tracks, safely cross trestles and bridges. You need no extra manpower, no special transport equipment.

Handle long dozing cycles efficiently . . . economically

Once on the job, Tournatractor's fast work-speeds on rubber step-up operations . . . make long dozing, pushing, or scraper-operating cycles practical and profitable.

Pick-up is fast, because of L-W tractor's sealed, anti-friction, 4-wheel drive. Air-actuated power-shift transmission allows operator to shift gears on the run, losing no momentum. Even reverse shift is instant.

Electric controls — simplest system of all

Another big advantage of the Tournatractor is its simple operation. Even untrained men become good operators in a very short time.

Tournatractor's electric controls are easy-to-understand, easy-to-reach. One-hand, one-motion clutch-less shifting . . . plus the many safety features . . . mean men will use higher speeds more often.

Call or write us for details on fast-stepping, "go-anywhere" Tournatractor. Ask us to show you the L-W rubber-tired tractor in action on assignments of your choice.

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Where quality is a habit

ROCKFORD

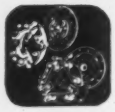
MORLIFE® CLUTCHES

Insure SMOOTH Powerful Pick-Up in Heaviest Going

Compared to previous type clutch facings, Morlife® Clutch facings reduce foot pedal pressure up to 50%. They assure positive engagement—with power-holding grip. Provide a degree of heat resistance and dissipation never before available. They give several times the durability for prolonging clutch life and extend the time between pedal adjustments many times as long. Let ROCKFORD clutch engineers show you how these new advantages will improve the operating ease and prolong the on-the-job life of your product.

SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER
313 Catherine St., Rockford, Ill., U.S.A.
Export Sales: Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

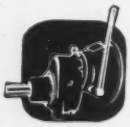

Small Spring Loaded

Heavy Duty Spring Loaded

Oil or Dry Multiple Disc

Heavy Duty Over Center

Power Take-Offs


Speed Reducers

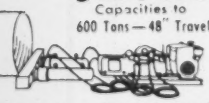
CLUTCHES

SIMPLEX Center Hole Hydraulic PULLERS
Perfected for
PRESTRESSING CONCRETE

Self contained and Remote controlled pumps and rams in capacities 10-100 tons.

SIMPLEX JACKS
TEMPLETON, KENLY & CO. Broadview, Illinois
2553 Gardner Road, Broadview, Illinois

LGOOD
Hydraulic & Mechanical
JACKS
Capacities to 600 Tons — 48" Travel



Jacking Equipment for
Pipe Pushing
Erection
Pile Driving
Pile Testing
Slip Forms
Tunnel Shields
Prestressed Concrete
many other applications

RENTALS — SALES — DESIGN
Large Stock
Immediate Delivery
Write for Job Fact Sheets

ELGOOD EQUIPMENT CORP.
373 Ten Eyck St., Brooklyn, N.Y.
HY 7-5445

. . . Obituaries

Burten E. Hull, 74, of Dallas, Texas, pioneer pipeliner, vice president of the Texas Company, and president of the Trans-Arabian Pipeline Company. Mr. Hull who is credited with masterminding the construction of both the Big Inch and Little Inch pipe lines, also played an important role in planning, financing and constructing almost all of the middle east piplines. Among his projects is the 1,000-mile tapline from Saudi Arabia to the Mediterranean coast.

Chester J. Meyers, 81, former state highway engineer in Utica, N. Y. A graduate of Rensselaer Polytechnic Institute, he joined the New York State Department of Public Works in 1906.

Thomas S. Holden, 72, vice chairman and former president of the F. W. Dodge Corp., New York, publishers of Architectural Record, Sweet's Catalogs and the Dodge Construction Reports.

Long a recognized authority on construction statistics and building industry business, Mr. Holden joined F. W. Dodge in 1919 as chief statistician, becoming vice president in charge of statistics and research in 1927. He served as president of the firm from 1941 to 1953.

Mr. Holden was educated as an architect, but his first job was as a mathematics instructor first at the University of Texas and then at Massachusetts Institute of Technology. He practiced as an architect for a few years in Boston and in Akron, Ohio. Mr. Holden was an honorary member of the American Institute of Architects and served as president of the New York Building Congress from 1935 to 1940.

Abraham Epstein, 70, president of A. Epstein & Sons, Inc., Chicago. A civil engineering graduate of the University of Illinois in 1911, Mr. Epstein was a specialist in designing industrial and commercial buildings in the Chicago area for nearly forty years. Much of his work was for the Central Manufacturing District and for the Union Stock Yards & Transit Co. He established his own firm in 1921 and in 1947 created the firm of A. Epstein & Sons. He was a member of the Chicago Plan Commission and also served on the Chicago Building Commissioner's Committee on Standards and Tests.

Herbert E. Studer, 40, director of the Federal Housing Administration's Western Missouri District, Kansas City, in 1953 he succeeded J. Vivian Truman, brother of the former President Harry S. Truman, as district director. He was a former mayor of Sedalia, Mo.

160 hp L-W Adams Model 660 cuts sub-grade for R. B. Tyler Co., Jackson, Mississippi . . . takes a big bite at 4.7 mph in median strip of 4-lane U.S. 61, between Natchez and Washington. Easy power steering, dual-action brakes, and positive blade control give the operator confidence to grade at practical, time-saving speeds.

When you compare price ...compare "extras"

You get these "extras" as standard equipment on this big L-W Adams† grader

You'd expect to pay a plus price for the extra-value features that help make L-W Adams Model 660 the most productive grader built. Here are the "extras" you get on the standard 160 hp "660" *without extra cost* — in addition to what is considered standard equipment on most ordinary graders.

Power steering — hydraulically-powered steering that retains "road feel" . . . for easier steering; for fast turns out of ruts, ditches, etc.; for smooth, precise blading control; for quick turn-arounds; for over-all easier operation.

Slide-shift moldboard — shifts 26½" right or left on circle . . . for quick-change to cut high banks, to grade low backslopes, finish wide shoulders, etc.

Big tires all-around — all six tires 14.00-24, 10-ply . . . for least rolling and turning resistance; for best traction and push-power; for extra flotation in soft going.

Dual-action brakes — hydraulic brakes on all 4 tandem wheels *and* on transmission . . . for safer, easier stops on hills, highways; for fast reversing to reduce blading cycle-time; for quick maneuvering.

12-speed constant-mesh transmission — 8 forward speeds (to 26.0 mph), 4 reverse speeds (to 13.7 mph), 3 creeper speeds are optional . . . for more power-speed combinations to handle more work at full power and best speed; for less waste of production-time in traveling, and on shuttle back-up; constant-mesh for fast, no-clash gear-shifts.

Foot accelerator — in addition to regular hand throttle . . . for split-second control on variable-speed work; for faster, safer travel in traffic.

Rubber engine-mounts — 4-point engine suspension on live rubber isolates vibration and noise . . . for less annoyance and operator fatigue, for a tighter machine, for less maintenance and downtime.

Electric starting — key-turn starting . . . for positive, instant starts, even on coldest mornings.

Parking brake — mechanical brake on transmission . . . for positive holding on steepest slopes.

Full-floating rear axle — drive-axle carries no grader weight . . . for less stress, strain, and friction; for long maintenance-free life.

Optional at modest cost

- Creeper speeds (3), slow as 36' per minute (to 0.4 mph) at full power.
- POWER-*Flow*® transmission with 190 hp engine and torque converter.
- Power-shift moldboard, scarifier, Jebco Elegrader, bulldozer, snow plow and wing, cab.
- Complete line of special-purpose attachments and accessories at low "buy-anytime" prices.

Before you buy any higher-powered grader, compare its specifications and features with LeTourneau-Westinghouse Adams Model 660 . . . check the "extras" included in "660's" basic price. Call us for complete information and a demonstration to prove their worth!

†Trademark G-1569-DCJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

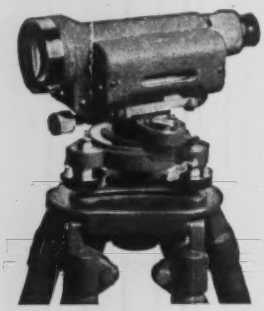
A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

DOWN TO FUNDAMENTALS

SMALLER AND BETTER

KERN'S NK3 Precise Engineers' Level. The world famous engineering tool especially designed for accurate leveling.



The NK3 offers over 100 years of Swiss Master Craftsmanship and the latest technical achievements compressed into 4 lbs. of maximum precision, operational efficiency and economy.

- Mean leveling accuracy per mile (normal conditions) ± .008 Ft.
- Coincidence bubble is viewed directly through 30X telescope, allowing constant check on bubble centering while reading rod.
- Ready for use right out of the case. Highest precision leveling with coincidence spirit level and tilting screw. Coated optics give increased brilliance and contrast in the image.

MORE RELIABLE READING IN LESS TIME!

Ask for Detailed Brochure NK527.1

SERVICE DEPARTMENT
FACTORY TRAINED PERSONNEL

Kern SWISS — The FINEST in SURVEYING EQUIPMENT

KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

Low base course bid takes . . .

West Virginia Road Contract

A $2.85 a ton bid for 118,850 tons of crushed run stone material for the base course gave the low bidder the 1% overall advantage he needed to take the contract for this West Virginia State Road Commission job on U. S. Route 250, between Philippi and Belington. John E. Mayes, Weston, W. Va., is district engineer.

The $1,148,023 award to J. F. Allen Co., Clarksburg, W. Va., averages $245,304 a mile. It is 7.9% below the engineer's estimate.

The job includes 4.68 miles of grading, drainage, traffic bound base, and asphaltic concrete paving. Unclassified excavation, 516,300 cu yd at 74¢ a yd, accounts for 33% of the contract. The crushed run stone base course material takes another 29.5% of the total cost. Other bids on the excavation ranged from a low of 67¢ to a high of 83¢ per cu yd, and on the base course material, from $3.10 to $3.90 a ton.

Minimum wages include: asphalt paver operators $2.35; bulldozer operators $2.30; crane and shovel operators $2.75; stone crushers $2.00; carpenters $2.00; common laborers $1.50.

1C J. F. Allen Co., Clarksburg, W. Va.	$1,148,023
2 Horton Bros., Grafton, W. Va.	1,157,124
7 Robertson, Fowler & Co., Huntington, W. Va.	1,231,098
EE State Road Comm., Charlestown, W. Va.	1,246,406

Bids: 10-7-58 Items	Unit	Quantity	Unit Prices 1C	 2
Clear & grub	ac	75	$175.00	$200.00
Excavation, unclassified	cy	516,300	0.74	0.72
structural	cy	10,190	3.00	3.00
Base crse, cr run stn matl	t	118,830	2.85	3.15
Prime coat, agg, limestone	t	732	5.50	6.00
Bituminous material	gal	39,095	0.26	0.25
Hot laid asph conc, limestone				
bottom course	t	8,100	10.20	9.50
wearing course	t	4,000	10.20	9.50
Reinf conc culv pipe, 18"	lf	3,752	5.00	4.25
24"	lf	288	7.00	5.75
30"	lf	156	9.00	8.50
36"	lf	352	12.00	12.00
60"	lf	288	30.50	32.00
96"	lf	28	61.00	75.00
ext str 24"	lf	380	8.00	8.00
42"	lf	148	20.00	20.00
48"	lf	124	24.00	25.00
54"	lf	184	29.00	32.00
Conc, cl A	cy	636	63.00	55.00
cl B	cy	224	63.00	55.00
Reinf steel bars	lb	82,070	0.14	0.14
Dampproofing	sy	806	1.80	1.50
Conc drain pipe, 8" porous	lf	17,250	1.65	1.60
Cr stn, grav or sand, underdrain	cy	2,890	7.50	7.00
Comb curb & gutter	lf	2,975	4.50	3.00
Conc sidewalk	sf	13,050	0.65	0.60
Hillside drop inlet w grating	ea	34	220.00	200.00
Curb drop inlets comp, type A	ea	4	300.00	100.00
Stl beam type grd rail, deep	lf	8,500	3.00	2.85
Special rock fill	cy	4,550	0.40	0.75
Water for comp. of embankments & dust pall	Mgal	602	4.00	5.00
Ground agricultural limestone	t	53	16.00	20.00
Fertilizer	t	18	75.00	80.00
Seed & mulch	sy	167,200	0.09	0.10

Awarded: 10-24-58 Commence: 11-3-58
Completion schedule: 400 working days
Liquidated damages: Engineering costs

Kansas Channel, Levee Draws Eight Bidders

This flood protection project for the Soldier Creek Diversion Unit, Topeka, Kan., for the Corps of Engineers, consists of 4.5 miles of 12-ft levees and appurtenances and 2,950,000 cu yd of channel excavation.

Col. L. E. Lauron is district engineer at Kansas City, Mo., and V. Watson is resident engineer at Topeka.

The award at $1,674,974 went to Amis Construction Co., Oklahoma City, on a bid 2% above the engineer's estimate but 31% below the high of the eight bids.

Channel excavation at 30 cents accounts for more than half of the total contract. The bottom width is 100 ft, with 1 on 2 side slopes 12 ft deep.

Concrete must contain 5 to 6 sacks of cement per cu yd.

The contractor furnishes all materials.

Wages on the job range from a high of $2.95 for skilled, through $2.20 for semi-skilled, to $1.85 for common laborers. Small equipment operators receive $2.35 and medium equipment operators $2.55.

The eight bids included:

1C Amis Constr. Co., Oklahoma City, Okla.	$1,674,974
2 J. D. Armstrong Co., Inc., Ames, Iowa	1,786,474
5 Grosshans & Petersen, Inc., Marysville, Kan.	2,431,227
EE Corps of Engineers, Kansas City, Mo.	1,642,782

Bids: 10-23-58 Items	Unit	Quantity	Unit Prices 1C	 2
Clear & grub	ls	job	$52,000	$5,000
Excavation, common	cy	2,950,000	0.30	0.45
Existing levee, remove	cy	17,000	0.25	0.20
Exc, interceptor ditch	cy	11,500	0.22	0.25
Fill, impervious	cy	228,000	0.08	0.09
random	cy	500,000	0.07	0.05
channel	cy	100,000	0.04	0.04
exist creek channel	cy	418,000	0.03	0.04
Interceptor ditch blanket	cy	3,000	0.50	0.20
Riprap, type A	t	200,000	2.50	3.00
type B	t	3,000	3.00	3.00
Bedding	cy	885	6.50	3.00
Levee surfacing	t	7,900	3.50	2.75
Seeding	ac	85	100.00	100.00
Concrete	cy	260	100.00	80.00
for grout	cy	240	15.00	25.00
Portland cement	bbl	655	5.50	5.00
Steel reinforcement	lb	21,700	0.16	0.20
Cor metal pipe, 24"	lf	221	10.50	12.75
30"	lf	90	13.00	14.75
36"	lf	104	15.00	18.50
Reinf conc pipe, 24"	lf	502	20.00	20.00
36"	lf	99	31.00	29.00
72"	lf	125	84.00	80.00
Sluice gate&floor stand, 24"	ea	6	2,200	1,500
36"	ea	3	2,700	2,200
72"	ea	1	5,500	3,000
Flap gate, 24"	ea	6	410.00	285.00
36"	ea	3	620.00	310.00
Cutoff collars	sf	1,086	3.00	4.50
Misc. metals	lb	4,100	1.00	0.75
CMP, 24" & flap gate relay	lf	114	3.50	12.00
Flap gate, 72"	ea	1	3,500	2,000

Completion schedule: 670 cal days
Liquidated damages: $200/day

Loading C Rear-Dump with 10 yards of rock takes about 2 minutes. Pit alongside busy tracks is just big enough to allow one extra haul unit to be crammed into it.

Only one-way traffic is possible as machines haul over single-track railroad right-of-way. Tournapulls average 10 to 12 mph on 3200-ft. cycles.

MOVING ROCK

for Trans-Canada Highway System

To move traffic faster and with greater safety through Canada's narrow Fraser River Canyon, British Columbia's Highway Department undertook relocation of 4½ miles of rocky, mountainous road.

The new route, about 20 miles north of Hope, is being built to specifications for the Trans-Canada Highway System . . . bypassing many curves . . . and eliminating a number of narrow "one-way" sections in the old road.

Highway Construction Company, Limited, Vancouver, is using *three* 22-ton C Tournapull® Rear-Dumps to move the toughest half of the 700,000 cubic yards of rock involved in the job.

Hauls over tracks, rock fill

Tournapulls hauled rock spoil 1600 feet: about 400 feet along planked railroad tracks . . . up a short 7% grade to the new roadway . . . then over level shot-rock fill to the dump. Train traffic (about 1 per hour) interrupted work. Loads in highly fissured granite, seamed with quartz, averaged 10 yards according to cross-sections taken by General Project Manager Ken Romano. (Contractor did not heap Rear-Dumps to their capacity height to avoid spilling rock on busy RR tracks.)

Tournapull haulers completed 3200-foot cycles in an average of 5.35 minutes. Each machine moved about 9½ loads hourly . . . 57 loads in 6 hours . . . in spite of rail-traffic delays.

Maneuver better than other machines

Men on this job say Tournapulls maneuver better than other machines.

"Many of our jobs couldn't be worked with anything but a LeTourneau-Westinghouse Rear-Dump," says K. J. Romano. "Their high dependability means consistently high production for us. Their maneuverability in tight quarters and ability to get through mud makes them perfect." On its entire series of Fraser River Canyon contracts, Highway Construction Company used all its own fleet of 9 C Rear-Dumps . . . rented 2 additional "C's" for the busiest months.

Work in 3-4 ft. of mud

Before coming here, machines helped build 15 miles of logging railroad — cutting through rock, swamp and muskeg — on the north end of Vancouver Island. Here, machines worked in mud 3 or 4 feet deep most of the time, say company officials. During their better-than-a-year stint at this location, machines recorded 100% availability. Rear-Dumps later traveled from Vancouver Island to the Fraser River Canyon work site under their own power.

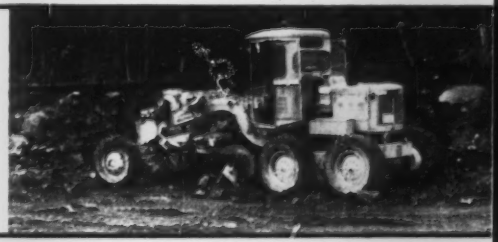
If you have tough rock work in your schedule, you'll want to know more about rugged Tournapull Rear-Dumps. Call or write for details.

K. J. Romano of Highway Construction Company also uses two Adams* graders on this relocation section of the Trans-Canadian Highway #1. His 550 and 660 Adams graders slope banks (1½:1 grade) . . . move rock and crushed gravel in a series of scattered jobs. In winter, he uses his graders to plow snow.

"We bought Adams graders because we believed them to be the best graders available," comments Ken Romano, "and (after using them) we still believe it."

P. J. Friesen, Operator on the "550", likes Adams optional creeper gears. "Creepers are perfect for work in rock," he says. "They help me do a better backsloping job, save the machine, too. Controls are fast and accurate. You can't beat these graders for finish work."

*Trademark CRG-1720-DCJ-1



LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Knuckles right down to any job!

This rugged heavyweight asks no quarter, it just wades right in and polishes off tough hauling jobs. Two high-capacity "live" rear axles give it better flotation and traction on soft ground. And its 234-hp. engine, with dual carburetors standard, gives this T900 tractor the big-chested power to handle the big hauling jobs without tiring.

The new Dodge tandems are packed with features that make heavy-duty hauling easier and more profitable: New instrument clusters, with tachometer and graduated ammeter and oil pressure gauges standard . . . suspended brake and clutch pedals . . . 90-degree-opening hood for easy servicing . . . air brakes standard on T900 models . . . up to 20 speeds forward. But see your Dodge dealer—and get the *heavy-duty* reasons why . . .

today,
it's real smart
to choose **Dodge Trucks**

Built throughout for dependable heavy-duty service, this 354-cubic-inch V-8 has dome-shaped combustion chambers . . . double rocker-arm shafts . . . precision timing gears instead of chains . . . positive exhaust-valve rotators . . . hydraulic tappets . . . sodium-cooled exhaust valves. And it develops full power on thrifty *regular* gas!

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES.

- Iron and Steel Products: Last, Dec. 11; Next, Jan. 15
- Wood Products, Glass, Explosives, Chemicals: Last, Dec. 18; Next, Jan. 22
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Dec. 25; Next, Jan. 29
- Wage Rates, Building Board, Lath, Insulation: Last, Dec. 25; Next, Jan. 29

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C.L. lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.† truckload del.* per block	CONCRETE Ready Mixed 1:2:4 del.
	Paper	Bulk	Mortar	Gravel, 1½ In.	Gravel, ¾ In.	Sand	1½ In.	¾ In.	1½ In.	¾ In.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.35‡	$3.95‡	$3.60‡	$3.10‡	$3.10‡	$2.50‡	$2.18‡	$2.33‡	$1.65‡	$1.75‡	$0.175‡	$0.21‡	$14.50‡
Baltimore	4.43‡	4.03‡	3.90‡	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18‡a	.18‡a	13.50‡
Birmingham	4.23‡	3.30‡‡		2.55‡a	2.55‡a	2.15‡a	2.75‡	2.75‡	1.55‡	1.75‡	.18	.18	13.55‡
Boston	5.95‡‡	4.63‡‡	4.82‡‡m	3.00‡‡s	3.00‡‡s	3.00‡‡s	1.75‡‡s	1.85‡‡s			.23‡‡	.27.5‡‡	15.00‡‡
Chicago	4.13‡‡	3.87‡‡	3.90 3.95‡‡	3.75‡‡e	3.75‡‡e	4.13‡‡e	3.95‡‡e	3.95‡‡e	2.25‡e	2.25‡e	.25‡e	.25‡‡e	14.00‡‡f
Cincinnati	4.68‡	4.16‡	4.18‡	2.20‡‡a	2.34‡‡a	1.90‡‡a	2.64‡‡a	2.64‡‡a	1.89‡‡	1.89‡‡	.19‡‡	.24‡‡a	13.75‡‡f
Cleveland	N.A. in C.L.		3.80‡‡e	2.25‡‡e	2.10‡‡e	1.75‡‡e	2.80‡‡	2.80‡‡	3.45‡‡f	3.45‡‡f	.....‡‡	.22‡‡	15.65‡‡
Dallas	3.75‡a	3.25‡a	3.63‡a	2.65‡‡a	2.75‡‡a	1.90‡‡	2.43	2.63			.27	.27	12.50‡‡
Denver	4.79‡‡	4.29‡‡	4.79	1.90	2.05	1.20‡‡	3.35‡‡				.22	.24.5‡‡a	10.70
Detroit	4.25‡a	3.75‡a	3.72‡a	4.50‡‡a/m	4.50‡‡a/m	4.25‡‡a/m	3.75‡‡a/m	3.75‡‡a/m	2.47‡g	2.47‡g	.22‡‡p	.25‡‡ap	14.40
Kansas City	4.23‡a	3.83‡a	4.10‡a	2.50‡‡af	2.70‡‡af	2.11‡‡af	2.11‡‡af	2.46‡‡af			.22‡a	.26‡c	13.50
Los Angeles‡	5.12‡‡h	4.68‡‡h	5.60‡	2.70‡‡e	2.70‡‡e	1.60‡‡e	3.95‡‡e				.17‡‡m	.28.5‡‡m	12.96‡‡l
Minneapolis	4.52‡a	4.11‡a	4.08‡	2.70‡‡e	2.70‡‡e	1.60‡‡e	3.95‡‡e				.19‡g		14.35‡
Montreal	3.38‡‡de	3.11‡‡de	3.72‡‡de	1.90‡‡a	2.15‡‡a	2.10‡‡a	1.90‡‡	2.15‡‡	2.00‡	2.00‡	.20	.28‡‡	10.80‡‡k
New Orleans	4.06‡	3.65‡‡	3.85‡	2.45‡	2.45‡	2.06‡‡			1.45	1.65	.27.5‡e		14.00‡
New York	4.80‡a	4.20‡‡	3.84‡		3.20‡‡	3.20‡‡	3.10‡‡	3.10‡‡			.25‡n	.27‡‡b	17.40‡‡n
Philadelphia	4.72‡‡a	4.31‡‡a	3.76‡‡	2.85‡‡a	2.85‡‡a	2.35‡‡a	2.70‡‡	2.80‡‡	2.20	2.20	.25‡.32		14.15‡‡
Pittsburgh	5.65‡‡‡i	4.62‡‡‡	5.00‡‡‡	2.85‡‡a/p	2.85‡‡a/p	2.00‡‡a/p	2.00‡‡a/p	2.20‡‡e	2.20‡‡e		.26‡e	.28‡e	15.80‡‡
St. Louis‡‡	4.16 4.48‡‡	3.70 4.08‡‡	3.80 4.18‡‡	3.25‡‡a	3.10‡‡a	2.40 3.10‡‡a	1.65‡‡	1.75‡‡			.24‡‡o	.30‡‡o	12.65 13.15‡‡g
San Francisco	4.34‡‡	3.79‡‡	4.78‡‡	2.02	2.02	2.12	2.17	2.17			.24	.28‡‡l	13.00‡‡
Seattle	4.22‡‡a	3.60‡‡a	4.10‡‡a	4.25‡‡‡m	4.25‡‡‡m	4.25‡‡‡m	4.50‡‡‡m				.26‡‡	.37‡‡s	13.90‡‡
Toronto	4.00‡‡	3.81‡‡	4.00‡‡	2.40	2.40	2.05	2.20	2.20	2.20	2.20	.26	.27.5‡‡u	15.25‡‡

‡ Delivered. * Prices incl. dealers discount except as noted. † Add 4% sales tax. †† Add 2% intrastate sales tax.

CEMENT: •a Less 10¢ disc. 15 days. •b Less 2½% disc. 15 days. •c Less 10¢ disc. 10 days. •d 10¢ disc. 20 days. •e Truckload lots. •f Fob mill, add $14.58 to $21.31 per car switching charges. •g fob mill + freight. •h LCL. •i Less 2½% disc. 10 days. •j Truck lots, fob yard. •k 100 bag lots. •l over 150 sacks. •m Sold in bags only. •n Less 5% disc. 30 days. •o Plus 50¢ for Sat. del.

SAND GRAVEL, STONE & SLAG: •a Truck lots. •b Per cu. yd. •c 5 tons up. •d Less 5¢ disc. 15 days. •e Less 2½% disc. 10th. •f Less 2% disc. 15th. •g Less 5% for cash. •h Less than 5 tons. •i Plus 8½% mun. & prov. tax. •j F.o.b. quarry. •k Barge lots asd. •l F.o.b. scow Hudson river. •m Less 2½% for cash. •n F.o.b. cars. •q F.o.b. yard. •r Less 5½% disc. 15th. •s Less 2½% disc. 10 days. •t Less 10¢ disc. 10 days. •u Less 5¢ disc. 10 days. •v Less 2½% disc. 15 days. •w Less 10¢ disc. 15 days. •x Incl. 35¢ del. charge. •y F.O.B. dock.

CONCRETE BLOCK: •a Cinder. •b Waylite. •c Haydite. •d Celocrete. •e 5⅓ x 8 x 12 in. •f 8 x 4 x 16. •g F.o.b. truck at job. •h F.o.b. plant San Rafael. •m F.o.b. yard. •n 8 x 8 x 18. •o Less 2½% disc. 10 days. •p Less 2½% disc. 10th. •q Less 5½% disc. 10th. •r Less 2½% disc. 15 days. •s Less 2½% disc. cash. •t Siporex, 7 x 8 x 18. •u Less 5% disc. 10 days. •v Less 2% disc. 15th.

READY MIXED CONCRETE: •a 6 cu yd or over del. Man. •b 25 cu yds or more. •c 10-100 cy. •d 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. •e 2,000 lb comp. •f 2,500 lb comp., less 5% disc. 30 days. •g Less 25¢ disc. 15 days. •h Less 50¢ for cash. •i 5% off for cash. •j 2% off for cash. •k Federal tax included. Add 6% mun. & prov. tax. •l 1-2½-3 base price. •m F.o.b. yard. •n Plus escalator clause. •o Less 2% disc. 15 days. •p Less 50¢ disc. 15 days. •q Less 2% disc. 10 days. Add 50¢ per zone. •r 2000 wgt. •s Less 5% disc. 10 days. •t Incl. 50¢ heating. •u Less 2% disc. 15th.

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10¢ discount, 15 days. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$3.45‡	Buffington, Ind.	$3.40‡	Steelton, Minn.	$3.45‡	Muskegon, Mich.	$3.45†	Toledo, O.	$3.45†
Clinchfield, Ga.	3.45‡	Independence, Kan.	3.25‡	Leeds, Ala.	3.30‡	Saginaw, Mich.	3.45†	Milwaukee, Wis.	3.50‡
Kingsport, Tenn.	3.45‡	Hannibal, Mo.	3.35‡	Duluth, Minn.	3.45†	Wyandotte, Mich.	3.45†	Green Bay, Wis.	3.50†
West Des Moines, Iowa	3.50‡	Northampton, Pa.	3.50‡	Hudson, N. Y.	3.50‡	Buffalo, N. Y.	3.55‡	Ironton, O.	3.45‡
Nazareth, Pa.	3.50‡	Universal, Pa.	3.60‡	Alpena, Mich.	3.35†	Oswego, N. Y.	3.60†	Montreal City	2.56†
Bath, Pa.	3.50‡	Waco, Tex. (+10¢ tax)	3.35‡	Detroit, Mich.	3.45‡	Cleveland, O.	3.50†	W. Winfield, Pa.	3.60‡
Lesley, Pa.	3.35†	Giant, S. C.	3.45†	Howes Cave, N. Y.	3.50‡	Alsen, N. Y.	3.50‡	Security, Md.	3.50‡

† Price to hold for first quarter of 1959. †† Price guaranteed through December 31, 1959.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta				$29.37‡‡	$45.00‡‡	$0.1271‡‡	$0.2016‡‡	$0.1338‡‡/pa‡‡	$0.2412‡‡/pa‡‡	$0.1338‡‡	$0.1327‡‡	$0.24‡‡
Baltimore	150.00‡‡			23.00‡		.095‡	0.185‡	10¢/e‡	19¢/e‡	10‡	10‡	0.195‡
Birmingham		66.00‡‡		25.12		1089		1192		1096	1099	
Boston				22.00‡‡a/s‡‡	46.00‡‡a/s‡‡	22.00‡‡a/s‡‡	46.00‡‡a/s‡‡	105‡‡a/e‡‡	24‡‡a/e‡‡	.134‡‡a/OR	1550‡‡R	
Chicago	150.00‡‡a	90.00‡‡‡a/b	3.95 4.00‡‡‡a/l	21.20‡‡	31.20‡‡	20.40‡‡	30.40‡‡	975‡‡/e‡‡H	1775‡‡/e‡‡H	.08‡‡b		
Cincinnati												
Cleveland		89.50‡‡‡d/g	6.30‡g	26.00‡‡A		26.00‡‡A		1165‡‡e‡‡AF			1265‡‡AG	21‡‡AG
Dallas	e	40.80‡‡	e	26.82	46.20	1138‡‡	1983	30.45	52.40	.1100	1138	1983
Denver		58.00										
Detroit		116.00		33.05		32.45‡‡		13.50‡‡		.1133		28
Kansas City	e	e	e	18.00‡‡		18.00‡‡		08.25‡‡e/J		.079‡‡	0.125‡‡	
Los Angeles‡	e		e	21.50‡‡m		21.50‡‡		23.00‡‡d/K		22.00‡‡m	23.90‡‡p	26.30‡‡p/q
Minneapolis			3.73‡‡	26.00		26.00‡‡		0.115‡‡		0.105	1256‡‡	
Montreal	e	e	e	32.50‡‡	59.80‡‡	176‡‡	226‡‡	18.70‡‡/e‡‡	23.70‡‡/e‡‡	.154‡‡	242‡‡	27‡‡X
New Orleans				20.00‡‡	o	20.00‡‡	o	095‡‡e	o	.085‡‡R	095‡‡RL	1905‡‡B
New York			3.50‡‡	21.99‡‡	43.94‡‡	21.99‡‡	43.94‡‡	10.61‡‡F	20.01‡‡F	.105‡‡	10.68‡‡	20.11‡‡
Philadelphia	175.185	110.120	4.06	24.00‡‡		24.00‡‡		11F‡‡		105‡‡	14‡‡F	
Pittsburgh	60.00‡‡	95.00‡‡	6.35‡‡	31.40‡‡		31.40‡‡		1411‡‡		14‡‡	1411‡‡	
St. Louis‡‡				19.74‡‡		1825‡‡		0803‡‡e/M	0918‡‡e	0.165‡‡	8251‡‡	30‡‡
San Francisco		70.00		24.50‡‡	41.50‡‡	24.50‡‡/x‡‡	41.50‡‡/x‡‡	24.50‡‡/N	43.00‡‡/N	25.25‡‡/R	25.50‡‡/X	2665‡‡/X
Seattle				25.00‡‡	40.00‡‡	25.50‡‡/x‡‡		26.50‡‡/E		24.25‡‡/E	23.50‡‡/X	45.10‡‡/X
Toronto		138.00	4.50‡‡	41.30‡‡	60.83‡‡	0.2145‡‡	0.2265‡‡	0.2234‡‡	0.2634‡‡	0.204‡‡	0.2162‡‡	2712‡‡

‡ Delivered. † Add 4% sales tax. †† Add 2% intrastate sales tax.

PAVING BRICK & BLOCK: •a Less 2½% disc. 10th. •b 3 x 3½ x 8. •c 2¼ x 8½ x 4. •d Truckload lots. •e Not used. •f 2" interior 6 lb. tr. •g Less $1 Mdisc. 15th. •h 2" tr., 8 lb. •i 3 x 3½ x 8. •j 2", 6 lb. tr. •k Used. •l Redshale. •m Pine-oak $6.57. •n Truck del. •o Less $1 M disc. 15 days. •p Used; $40; new: $80.

ASPHALTS: •a F.o.b. refinery, Everett, Mass. •b F.o.b. refinery, Lockport, Ill. •c F.o.b. Sugar Creek, Mo. •d F.o.b. refinery, El Segundo. •e F.o.b. Baton Rouge. •f F.o.b. Hartford, Ill. •g F.o.b. refinery, Richmond, Calif. •h F.o.b. Martinez. •i F.o.b. refinery, Baltimore. •j F.o.b. refinery, Inglewood, Calif. •k 50-110 penetr. •l Less than 100 penetr. •m 40-300 penetr. •n F.o.b. refinery, Montreal. Fed. tax included; add 6% for mun. & prov. •o Drums not avail. Shipped in steel bbl. •p 80/70 penetr. •q RSI. •r In customer's drums. •s Shipped in drums, per drum. •t 150-300 penetr. •u Per 100 gal. •v Per ton. •w Per gal. •x Also tank trucks. •y F.o.b. Oakland. •z F.o.b. Edmonds. •A F.o.b. refinery, Cleveland. •B F.o.b. Destrehan, La. •E RC. •F Also RC. •G Also MS, SS. •H RC 0.5 incl. •I MC 4. •J MC, RC $0.095. •K MC 3, 4, & 5. •L MS. •M MC 1.5, RC 1.5, $0.0918. •N MC 3. •O Truck-load. •P F.o.b. refinery Savannah; $0.09 gal., tank cars; $0.20 gal., drums. •Q F.o.b. Eldorado, Ark. •R Delivered within 50 mi. •S Less 2½% disc. 10 days, net 30. •T Less 1% disc. 10 days. •U F.o.b. refinery. •V Less 2½% disc. 15 days. •W SC 2. •X RS 1. •Y SC 1. •Z Incl. 10¢ Sales Tax. •aa SC 3, 4, & 5. •bb RS 2. •cc In used drums.

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Maine—FERRY TERMINALS—BA 1/30—Maine Port Auth., State Pier, Portland, ferry terminals, Rockland—Vinalhaven. $200,000. Plans deposit $25. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., engrs.

BUILDINGS—BA

Mass., Winchester—CHURCH—BA 1/14—Church of Epiphany, 70 Church St., invited list of bidders; church addn., $350,000. Peery, Shaw, Hepburn & Dean, Park Square Bldg., Boston, archts. CD 8/22.

HEAVY CONSTRUCTION—LB & CA

† Consolidated Constructors, Inc., 807 Congress St., Portland, Me., LB $731,979, est. $900,000-$1,000,000; Readiness Crew Bldg. and utilities (SAC) Dow Air Force Base, ENG-19-016-59-41, BANGOR, ME.; U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Alonzo B. Reed, Inc., 88 Broad St., Boston, Mass., engrs. Bids Dec. 16. CD 11/21.

▲† Theodore Loranger & Sons, 404 Nash Rd., New Bedford, Mass., LB $1,364,460, est. $1,590,750; constr. airmen's dormitories, (6); Air Force Base, ENG-19-016-59-55, FALMOUTH, MASS.; U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids Dec. 17. CD 11/25.

BUILDINGS—LB & CA

R & S Constr. Co., 10 Tremont St., Boston, Mass., CA est. $560,000, APARTMENT incl. 108 units, East of Bishop St., FRAMINGHAM, MASS.; Bishop Gardens Inc., 10 Tremont St., Boston, Mass. R. J. Williams, 26 Haviland St., Williston (Quincy), Mass., archt.

▲ D. & S. Builders, Inc., 785 Middle St., Bristol, Conn., owner builds. $2,000,000. 200 HOUSES, Stafford Ave., BRISTOL, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. J., Riverdale—BA 1/14—Borough, Borough Hall, well, pump house and storage tank on Wedgewood Rd., main in Patterson-Hamburg Turnpike, $175,000. A. B. Anderson Assocs., Ridgedale Ave. E., Hanover, engrs. CD 1/17.

† Md., Andrews Air Force Base—HANGAR, etc.—BA 1/15—U. S. Eng., First and Douglas Sts., N.W., Wash., D. C., hangar, maintenance, organization (ORT) Serial No. ENG-49-088-59-15-161. Plans deposit $25. H. D. Nottingham & Assoc., Arlington Towers, Arlington, Va., archts. CD 11/27.

† Md., Andrews Air Force Base—HANGAR, etc.—BA 1/15—U. S. Eng., First and Douglas Sts., N.W., Wash., D. C., hangar, maintenance, organization (AM) Serial No. ENG-49-088-59-16-117. Plans deposit $25. H. D. Nottingham & Assoc., Arlington Towers, Arlington, Va., archts. CD 11/27.

▲ Pa., McKeesport—BA 1/27—Municipal Auth. City of McKeesport, 201 National Bank Bldg., 5th Ave. and Sinclair St., constr. 1 cont., intercepting sewers, sewage regulators, force mains, siphons and appurtenances, part A1, constr. Upper Monongahela River interceptor sewerage regulators and appurtenances, (part B), constr. Lower Monongahela River interceptor sewerage regulators, force mains, siphon and appurtenances, part C1, constr. Youghiogheny River interceptor sewerage regulators, force mains, siphon and appurtenances, Part D, constr. Long Run interceptor and appurtenances. Plans deposit $60. Constr. 2, general constr., sewage treatment plant, outfall sewer, roads, pumping stations and appurtenances. Plans deposit $60. Constr. 3, plumbing work in connection with constr. of sewage treatment plant and pumping stations. Plans deposit $25. Constr. 4, heating work in connection with constr. of sewage treatment plant and pumping stations. Plans deposit $25. Constr. 5, electrical work in connection with constr. of sewage treatment plant and pumping stations. Plans deposit $25. Constr. 6, equipment and piping in connection with constr. sewage treatment plant and pumping stations. Plans deposit $60. Gannett, Fleming, Corddry & Carpenter, Inc., P. O. Box 5073, Pittsburgh, Zone 6, or 600 N. 2nd St., Harrisburg, engr. CD 8/19.

BUILDINGS—BA

Md., Rockville—CIVIC CENTER—BA 1/13—City, City Hall, 13,000 sq. ft. civic center pavilion. Plans deposit $40. Extended date. Satterlee and Smith, 3 Dupont Circle, Wash., D. C., archts. CD 12/10.

▲ N. Y., Cortland—LIBRARY BLDG.—BA 1/14—Bureau of Contracts, Dpt. P. Wks., State Office Bldg., Albany, general constr., heating, sanitary, electric and elevator work for library, imprvt. of grounds, service connections and ground lighting, State University Teachers' College. Over $1,000,000. Plans deposit $40, general, $30, electric, $20, heating, $10, sanitary, $5, elevator. CD 3/27.

N. Y., Comstock—CELL BLOCK—BA 1/21—Bureau of Contracts, Dpt. P. Wks., State Office Bldg., Albany, general constr., heating, sanitary and electric work for Cell Block, ground imprvs. and service connections, Great Meadow Correctional Institution. Over $500,000. Plans deposit $50, general, $20, each, electric and sanitary, $25, heating.

▲† N. Y., New York—MEDICAL-SURGICAL BLDG.—BA 1/21—Bureau of Contracts, Dpt. P. Wks., State Office Bldg., Albany, general constr., heating, sanitary, electric, elevator, refrigeration, food service equip. and laboratory equip. for Medical-Surgical Bldg. incl. service connections at Bronx State Hospital. $3,000,000-$5,000,000. Plans deposit $50 for general, $40, each, heating, sanitary, electric, $30, elevator, $20, each service and laboratory equip., $5, refrigeration. CD 4/30.

▲ N. Y., Plattsburgh—LIBRARY BLDG.—BA 1/21—Bureau of Contracts, Dpt. P. Wks., State Office Bldg., Albany, general constr., heating, sanitary, electric and elevator work for Library Bldg., incl. imprvt. of grounds and service connections, State University Teachers' College. Over $1,000,000. Plans deposit $40 general, $20 each heating, and electric, $10, sanitary, $5, elevator. CD 3/26.

Md., Rockville—SCHOOL—BA 1/22—Montgomery, Co. Bd. Educ., Walter Johnson high school addn. Plans deposit $30. Justement, Elam and Darby, 2011 K St., N.W., Wash., D. C., archts. CD 4/24.

HEAVY CONSTRUCTION—LB & CA

▲ Chas. Simkin & Sons, Inc., 95 New Brunswick Ave., Hopelawn, N. J., LB $3,748,787 (17 bidders), general contract, sewage treatment plant on Duck Island, along Delaware River, TRENTON, N. J.; Dpt. P. Wks., City Hall, Trenton, N. J. Bids Dec. 18. CD 11/21.

Burlington Electric Corp., Keim Blvd., Burlington, N. J., LB $279,570, electrical work, (Trenton, N. J.).

▲ Woodcrest Constr. Co., 369 Lexington Ave., New York 17, N. Y., LB $1,150,656 (8 bidders), Contr. No. 800, Riverside Drive Viaduct reconstr., St. Claire Pl. to W. 135th St., NEW YORK, N. Y.; President Manhattan Boro, Rm. 2014, Municipal Bldg., New York 7, N. Y. Bids Dec. 16. CD 12/2.

BUILDINGS—LB & CA

▲ A. Frederick & Sons, Inc., 110-12 Lake Ave., Rochester, N. Y., LB $1,297,693, est. $1,300,000, Proj. NYS 171, HOSPITAL—BATH, N. Y.; Ira Davenport Memorial Hospital, Inc., Bd. Trustees, East Steuben St., Bath, N. Y. Bids Dec. 16. CD 12/3.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

† U. S. Eng., 111 E. 16th St., New York 3, N. Y., cancelled bids to have been opened Dec. 18, repairs to floor of Marine Repair Shops at Army Terminal, Serial No. ENG-30-075-59-2, BROOKLYN, N. Y. $75,000-$100,000. CD 11/18.

▲ Southmore Realty Corp., 440 W. 58th St., New York 19, N. Y., separate contracts, $1,836,480, 12 story APARTMENT, 209-23 E. 41 St., NEW YORK, N. Y.; Brux & Rand, 175 Fifth Ave., New York 10, N. Y., archts. CD 6/24.

▲ Colmar Constr. Co., 364 Gold St., Brooklyn 1, N. Y., LB $1,557,000, general constr. PUBLIC SCHOOL 9, E. 149th St., between Jackson and Concord Aves., Bronx Boro, NEW YORK, N. Y.; Supt. School Bldgs., Bureau Constr., 4th Fl., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 18. CD 12/1.

Battle Hill Development Co., 1478 Morris Ave., Union, N. J., owner builds. $500,000. 20 HOUSES, Spruce St., UNION, N. J.

▲ L. F. Driscoll Co., 32 W. Coulter St., Phila., Pa., LB $1,580,000, general constr. MENS DORMITORY and WOMENS DORMITORY and MUSIC BLDG. for West Chester State Teachers College, WEST CHESTER, PA.; General State Auth., 18th and Herr Sts., Harrisburg, Pa. Bids Dec. 17. CD 12/8.

▲ Wintz Bros. Inc., 1618 Sellers St., Phila., Pa., CA $1,022,000, general constr. Medill Bair HIGH SCHOOL, FALLSINGTON, PA.; Pennsbury Jt. School Bd., Fallsington, Pa. Bids Nov. 25. CD 12/8, under LB.

▲ Marden Constr. Co., 5 Beekman St., New York, N. Y., Dan. Forces, $4,000,000, 271 units APARTMENT bldg., W. State St., TRENTON, N. J. CD 11/27.57.

▲ Irwin & Leighton, Inc., 1505 Race St., Phila., Pa., LB $2,693,000, HOSPITAL, LOCK HAVEN, PA.; Lock Haven Hospital Assn., Lock Haven, Pa. Bids Dec. 10. CD 11/26.

▲ Wark & Co., 1920 Sansom St., Philadelphia, Pa., LB $1,000,000, manufacturing bldg. for Keebler Biscuit Co., T St. & E. Hunting Park Ave., PHILADELPHIA, PA.; Lyle F. Boulware, archt., 123 S. Broad St., Philadelphia, Pa. Bids Dec. 2. CD 11/20.

SOUTH

HEAVY CONSTRUCTION—BA

† La., New Orleans—CONTROL RADIO STATION—BA 1/15—Officer in Charge of Constr., Eighth Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans (Algiers), Naval Reserve Master Control Radio Station, NDF, Lakeshore Dr., NB, 22502, Spec. No. 22502/58, $100,000-$250,000.

† Fla., Eglin Air Force Base—LABORATORY—BA About 1/22—U. S. Eng., 2301 Grant St., Mobile, Ala., constr. S. C. Laboratory Data Reduction Bldg., incl. 2 story bldg., concrete and brick, water, sewer, electric, heating, drainage, clearing, paving, etc. CD 7/8.

BUILDINGS—BA

† Ky., Fort Knox—HOUSING—BA 1/16—Central Purchasing Branch, Fort Knox, renovation 1,500 units family quarters, A-IT-16-014-59. Over $500,000. Extended date. CD 12/5.

† Tenn., Oak Ridge—OFFICES, etc.—BA about 1/20—Atomic Energy Comm., P.O. Box E, Attn: R. J. Dunbar, Area Constr. Div., constr. offices and laboratories for Sherwood Facility in Bldg. 9203-2, Y-12 area, Oak Ridge Area, Inv. No. 481-59-eA. Plans deposit $50. CD 9/12.

▲† Va., Fort Lee—HOSPITAL, etc.—BA On Or About 1/21—U. S. Eng., foot of Front St., Norfolk, Zone 1, 3 story, reinforced frame hospital and structural steel frame heating plant, ENG-44-110-59-11, $3,000,000-$5,000,000. Marcellus Wright & Son, and Merrill & Lee Assocs., 601 E. Franklin St., Richmond, archts.

▲† Miss., Meridian—SENTRIOD AREA UTILITIES—BA 1/21—Dist. P. Wks. Office, Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C., central area utilities, Naval Auxiliary Air Station, NBy-21657, Spec. 21657-58. Over $1,000,000. CD 9/8.

HEAVY CONSTRUCTION—LB & CA

▲† Maxon Constr. Co., 2600 Far Hills Ave., Dayton 9, O., LB $1,837,947, est. $1,857,279 (10 bidders), 31 x 180 ft. control tower, 40 x 175 ft. discharge conduit, 200 ft. service bridge, 20 x 40 ft. shop bldg., 1½ mi. access road, gates, and other equip., Nolin River Reservoir, ENG-15-039-59-29, KENTUCKY; U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids Dec. 18. CD 11/19.

McDonough Constr. Co., Box 7102, New Orleans, La., CA $568,359, constr. pile supported foundations for grain tanks, conveyor, tunnels and site work, NEW ORLEANS, LA.; Port of New Orleans, 2 Canal St., New Orleans, La. Bids Nov. 21. CD 12/2, under LB.

▲ LOUISIANA—State Hy. Dpt., Rm. 307, Hy. Office Bldg., Baton Rouge.

Blount Bros. Constr. Co., Box 944, Montgomery, Ala., CA $3,424,473, reinforced deck girder span bridges West Atchafalaya Floodway Crossing, Rte. No. LA-US 190, 1.425 mi., SP Nos. 12.13.30 and 8.04.15, FAP No. F-169, St. Landry Parish. Bids Nov. 19, awarded Dec. 11. CD 11/24, under LB.

The winner's in the bag...

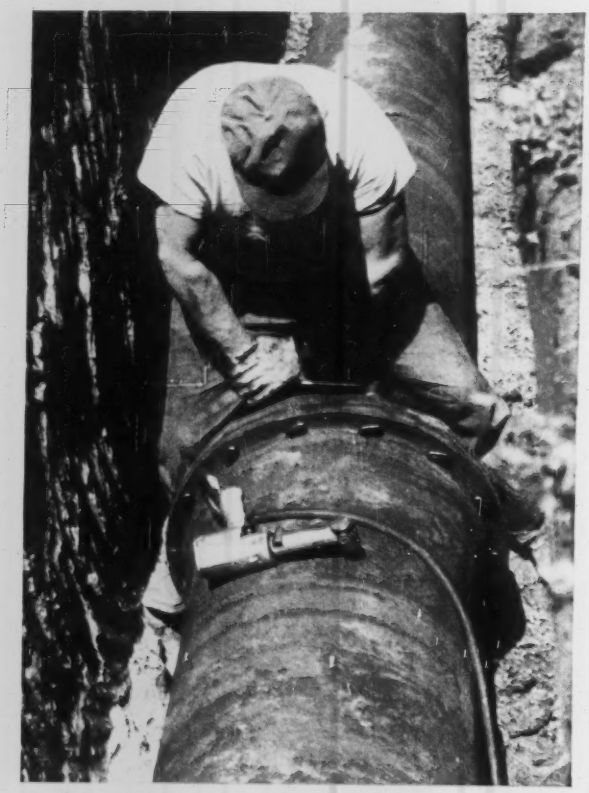
With hundreds of engineers voting—

IT'S CAST IRON PIPE BY A

A country-wide survey of consulting engineers, just completed, asked this question: *What kind of pipe do you prefer for water distribution, and why?* Of the answers received, by far the greatest number named cast iron! Here are typical comments:

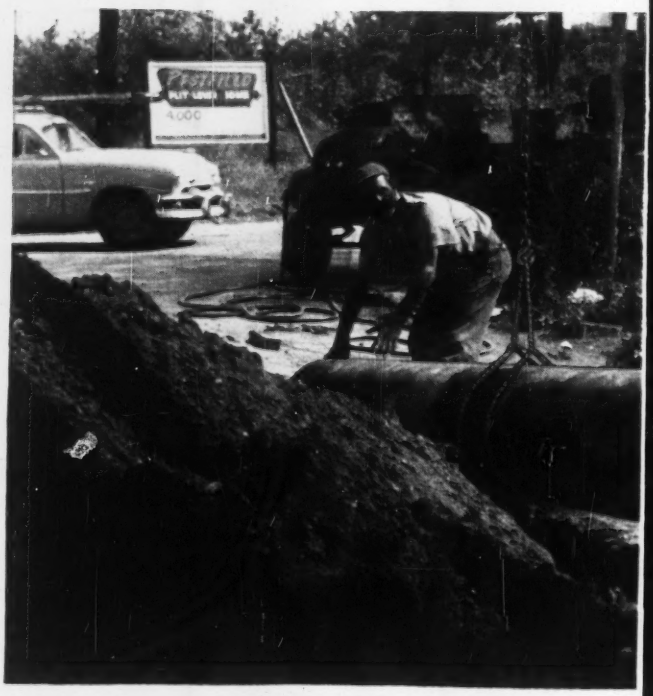
"This is known to be of 100-year life, and is the preference of this office when cost over this period can be used."

—Florida



"Our experience in the use of pressure pipe in the installation of water mains servicing communities has been limited entirely to cast iron. We have used nothing but cast iron all the way from 4" to 24" in diameter and have never regretted having done so."

—Texas



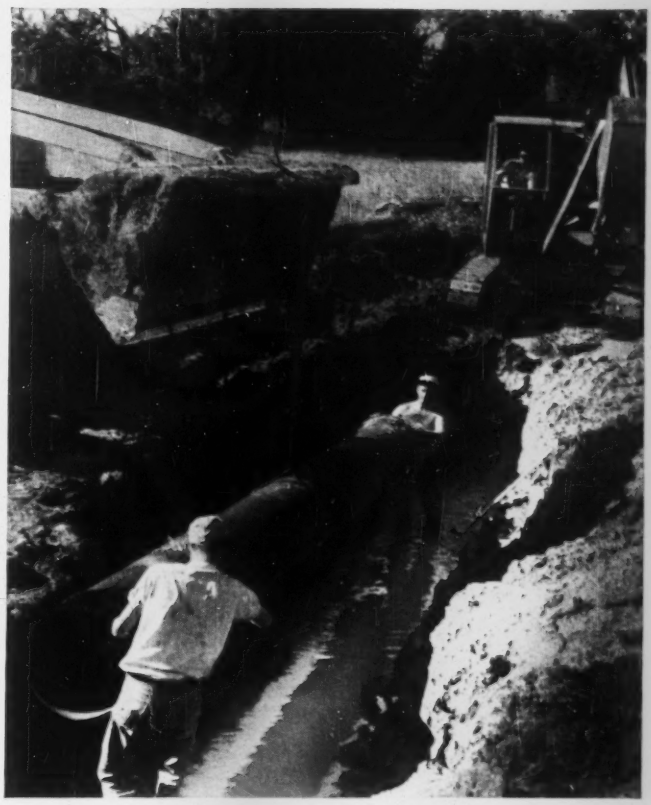
"Longer length of life—comparative ease of installation—agrees with codes more readily."

—Ohio

LANDSLIDE!

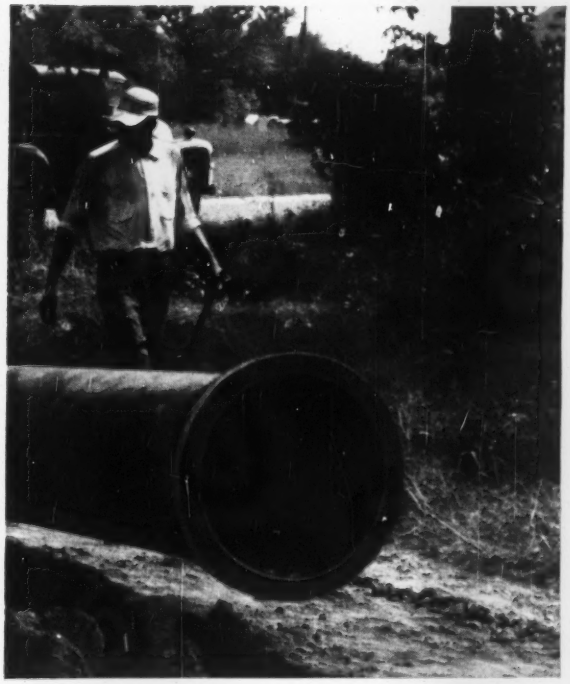
"Long life, relatively inert material, flexibility of applications, and readily handled by maintenance crews of most owners."

—Alabama



"Durability, ease of taps, strength where installation conditions are not ideal."

—New York



So many good reasons . . .

- LONG LIFE. The cast iron pipe you install today will be performing economically a hundred years from now.
- HIGH CAPACITY FLOW. Cement-lined cast iron pipe will deliver the full-rated flow all through the years. No other pipe, size for size, can carry more water.
- CORROSION RESISTANCE. Long life proves it. Most water utilities are still using the first cast iron pipe they installed.
- GREAT BEAM STRENGTH. Cast iron pipe resists the effect of heavy traffic, shifting soils.
- TREMENDOUS LOAD RESISTANCE. 6" cast iron pipe (Class 150) withstands a load of nearly 9 tons per foot!
- PRESSURE-TIGHT JOINTS. You have a complete choice of leakproof, easy-to-assemble joints. You need a minimum of tools and work crew.
- EASE OF TAPPING. No tapping saddles needed. Takes threading best of all kinds of pipe.

. . . good reasons for <u>you</u> to choose

CAST IRON PIPE

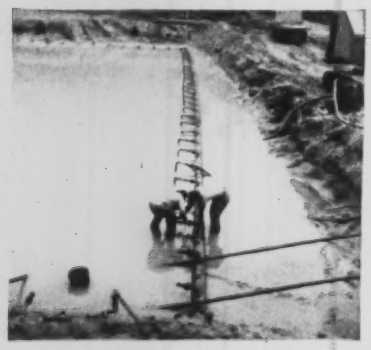
America's greatest water carrier

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Ill.

HOW TO HANDLE WET JOBS

ONE LIFT REMOVES 18 FT OF WATER FROM "PATCH-QUILT" SOIL

Sewage treatment plant, Clayton, N. J.
Contractor: C & T Affiliates, Inc.



SOIL on this job varied by area—fine silty sand here—coarse sand there—gravel a few feet away. This "patch-quilt" pattern precluded routine handling.

GRIFFIN engineers carefully planned proper installation for each wellpoint, using sand filters on some but not others.

This plus other special methods lowered the 18 ft of water with a money-saving single-stage wellpoint system. Top photo shows system placed directly at water level.

GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.
West Palm Beach, Fla.
In Canada: Construction Equipment Co., Ltd
Toronto Montreal Halifax

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort.

Ky.—Ralph E. Mills Co., 410 Ann St., Frankfort, Ky. CA $4,629,155, grade, drain and surf. 7.196 mi., incl. 11 structures Louisville-Lexington Interstate 64 I 64-3 (5) Franklin Co.

Ky.—R. B. Tyler Co., 1446 Levering St., Louisville, Ky. CA $3,280,130, 6 conc. pavement 11.504 mi., Louisville-Tennessee State Line Rd., from end of Elizabethtown Interchange extending southerly to US 31-W south of Sonora, I 65-4 (6), Hardin Co. Bids Dec. 15. CD 12-10; under LB.

▲† Barksdale & LaBlanc, Box 1567, Baton Rouge, La. LB $1,099,300 imprv., 500 Wherry HOUSING Units, Robins Air Force Base, IFB-09-603-59-50, MACON, GA., Procurement & Production Robins Air Force Base, Macon, Ga. Bids Dec. 1. CD 10-28.

BUILDINGS—LB & CA

▲ Clutter Constr. Corp., 377 Westward Dr., Miami Springs, Fla., CA $1,025,000, Carol City Junior High SCHOOL, 3737 NW 188 St., MIAMI, FLA., Dade Co. Bd. of Instruction Admin. Bldg., 275 NW 2 St., Miami, Fla. Bids Dec. 3. CD 12-10; under LB.

▲ C. A. Fielland, Inc., 107 N. Rome Ave., Tampa, Fla. LB $1,271,000 Base Bid 1 LB $1,304,360 Base Bid 2 CLASSROOM-COLLEGE UNION CAFETERIA BLDG., University of South Florida, TAMPA, FLA., Florida State Bd. Control Co. Courthouse, Tampa, Fla. Bids Dec. 10. CD 12-2.

▲ George A. Fuller Co., 1 Peachtree St., Bldg., Atlanta, Ga., LB $1,485,000, JUVENILE COURT and detention home, Fulton Co., ATLANTA, GA., Fulton Co. Bd. Comrrs. of Road & Revenues, Court house, Atlanta, Ga. Bids Dec. 17. CD 12-4.

▲ Southeastern Constr. Co., 7264 Station Co., Atlanta, Ga., CA $1,249,750, FOOD CENTER, EMORY UNIVERSITY, GA., Emory University (Br. Atlanta). Bids Nov. 11. CD 11-20; under LB.

▲ Fred Howland, Inc., 1451 NW 20 St., Miami, Fla. LB $1,899,500, AIRPORT HOTEL, Miami International Airport, MIAMI, FLA., Airway Hotel Inc., c/o Steward Skinner Assocs., archts., DuPont Plaza Center, Miami, Fla. Bids Dec. 9. CD 11-25.

▲† C. J. Langenfelder & Sons, 8427 Pulaski Hy., Baltimore, Md., CA $12,493,475, (12 bidders) paving 3 runways and related work on Washington International Airport, CHANTILLY, VA., Civil Aeronautics Admin., Dpt. Commerce, Room 2615, T-5 Bldg., Wash. 25, D. C. Bids Dec. 19. CD 11-17.

▲† Ralph E. Mills Co., Inc., P.O. Box 513, Salem, Va., LB $1,845,883, grading, draining, crushed aggreg. base, tunnel with lining and other work from Parking Horse Gap, 8.172 mi. to Balsam Gap, Blue Ridge Parkway, NORTH CAROLINA Bureau of Rds., Dept. of Commerce, Gatlinburg, Tenn. Bids Dec. 19. CD 11-28.

▲† Ballenger Paving Co., Box 927, Greenville, S. C., LB $1,155,640, APRON, operation alert, Turner Air Force Base, ENG-09-133-59-17, ALBANY, GA., U. S. Eng., 200 E. St. Julian St., Savannah, Ga. Bids Nov. 25. CD 11-3.

▲ Wm. A. Berbusse, Jr., Inc., 322 Royal Way, Palm Beach, Fla., CA $3,767,000, JAIL and PUBLIC SAFETY bldgs., County, NW 12 Ave., and NW 14 St., MIAMI, FLA., Dade Co. Bd. Comrrs., 10 Floor, Co. Courthouse, Miami, Fla. Bids Dec. 2. Awarded Dec. 15. CD 12-9; under LB.

▲ J. S. Stephens & Sons, Box 1708, Tampa, Fla., CA $1,110,904, STATE AGENCY bldg., TAMPA, FLA., Bd. Comrrs., State Institutions, Tallahassee, Fla. Bids Dec. 2. Awarded about Dec. 16. CD 12-9; under LB.

▲† Pearce & Gresham, 2021½ 2 Ave. S. E., Decatur, Ala., CA $1,060,747, 86x267 ft. pre-flight evaluation LABORATORY, HUNTSVILLE, ALA., U. S. Eng., Box 1169, Mobile, Ala. Awarded Dec. 13. CD 12-12; misc. LB.

▲† Daniel Constr. Co., Inc. of Alabama, 108 Church, Birmingham, Ala., CA $1,507,020, constr. PROPELLANT DEVELOPMENT facilities at Redstone Arsenal, ENG01-076-59-44B, HUNTSVILLE, ALA., U. S. Eng., 1169 Mobile, Ala. Bids Dec. 12. CD 11-11.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ Ill., Chicago, BA 1-15—Dpt. Purchases, City Hall, Zone 2, constr. and equipment installations at Central Water Filtration Plant, excavate, grading, butterfly valves, sluice gates, tainter gates, $5,500,000. CD 1-30-51.

O., Brooklyn, SCHOOL—BA 1-15—Bd. Educ., 9200 Biddulph Rd., Cleveland, Zone 9, Brooklyn High School alterations, $420,000, Outcalt Guenther & Assocs., 13124 Shaker Sq., Cleveland, Zone 20, archt. CD 11-19.

† Illinois—MISSILE STORAGE—BA About 1-19—U. S. Eng., 47th Merchandise Mart, Chicago 54, Ill., type C underground missile storage structures, misc. concrete pads and aprons, pavement, drainage, fencing, lagoon fill and seeding AAA Site C-41, Chicago, ENG-11-032-59-55.

O., Cuyahoga Falls—BA 1-19—City, City Hall, Contract 12, water mains. Plans, deposit $25, The Chester Engineers, 601 Sussman St., Pittsburgh 12, Pa., engrs.

Wis., Kewaunee—BA 1-19—City, City Hall, water treatment plant, 120,000; Plans, deposit $10, J. Donahue Engr. Co., 606 N. 8 St., Sheboygan, engr. CD 7-31.

† O., Columbus—AIR BASE IMPRVS.—BA 1-21—U. S. Eng., 2nd Fourth Ave., Huntington 18, W. Va., modification to existing dining hall, Clinton County Air Force Base, ENG-09-022-59-20. CD 9-5.

BUILDINGS—BA

Wis., Milwaukee—SCHOOL—BA 1-22—Bd. of School Directors, 1111 N. 10 St., Milwaukee, Zone 3, James Russell Lowell School, $400,000. Plans deposit $100, Mark Pfaller & Assocs., 7613 W. State St., Wauwatosa, Zone 13, archts. CD 4-8-57.

† O., Wilmington—DORMITORIES, etc.—BA 1-26—U. S. Eng., 237 4th Ave., Huntington 18, West Va., dormitories, and squadron headquarters bldgs., Clinton County Air Force Base, ENG-46-022-59-10; Extended date CD 12-4.

▲ Wis., Hartford—SCHOOL—BA 1-28—Union High School Dist., high school, $1,500,000, R. W. LeVee & Assocs., 1000 W. College Ave., Appleton, archts. CD 2-28.

▲† Ill., Great Lakes—HOUSING—BA 1-29—Dist. P. Wks. Office, Ninth Naval Dist., Bldg. 1-A, Casehart Family Housing, U. S. Naval Training Center NBH(HI) 10466 Spec. 10466-58. Plans deposit $140. Extended date CD 12-4.

▲ Minn., Minneapolis—ARCHITECTURE and ENGINEERING BLDG.—BA 2-8—Regents of the University of Minnesota, 404 Administration Bldg., Minneapolis 2, story, humit, architecture and engineering overflow bldg. on Minneapolis Campus, $1,400,000. Plans deposit $75, Thorshov & Cerny, 4400 Metropolitan Bldg., Minneapolis, Minn., archts. CD 6-7.

HEAVY CONSTRUCTION—LB & CA

▲ James McHugh Constr. Co., 6449 S. Park Ave., Chicago, Ill., CA $3,060,957, Northwest Superhighway, Proj. I-90-2.2 (68) grade separation over Wabansia Ave. and Cortland St., CHICAGO, ILL., City of Chicago, City Hall, Chicago 2, Ill. CD 11-25; under LB.

▲ E. A. Harrold, 34274 Stellwagon St., Wayne, Mich., LB $2,676,434, 7.5 mi. sewers, Div. I and II, INDIANAPOLIS, IND., Ben Davis Conservancy Dist., 4810 W. Washington St., Indianapolis, Ind. Bids Dec. 1.

▲ S. A. Healy Co. and Gargaro Co., Inc., 40 E. Seven Mile Rd., Detroit 3, Mich., CA $3,881,000, Contr. PW-2106, outlet sewer from Freud Pumping Station to Jt. chamber at Manistique and Kercheval, DETROIT, MICH., City, City-County Bldg., Detroit 26, Mich. Bids Oct. 21. CD 11-5; under LB.

▲ OHIO—State Hy. Dpt., Columbus, Zone 15.

O.—The Koski Constr. Co., 242 Center St., Astabula, O., CA $800,052, Type T-35 and structure 4.212 mi. SR 534, Section 17.02-21.40, S-1136, 11, Harpersfield Twp., City of Geneva, Proj. 642, Astabula Co.

O.—S. J. Groves & Sons Co., 500 Westby Temple Bldg., Minneapolis, Minn., $2,084,592, Type T-71 and structures 4.031 mi. SR 44, Section 1.20, FA488 (5), 0-1012, 81, Concord Twp., Proj. 638, Lake Co.

O.—Visintine & Co. and Complete General Constr. Co., 1335 Edgehill Rd., Columbus, O., CA $6,989,000, Type T-71 and structures 5.448 mi. SR 1-25-33, ACI-1105-4, Fairfield Twp., Proj. 635, Franklin Co.

O.—C. F. Replogle Co., P.O. Box 408, Circleville, O., CA $3,318,224, Type T-71 and structures 4.554 mi. ACI-1101-17, Sycamore Twp. and Villages of Evendale, Glendale and Sharonville.

O.—Wander & Mason, Inc., 1028 Proprietors Rd., Worthington, O., CA $4,027,457, Type T-71 and structures 2.985 mi. USR-62-20.83, ACI-1043 (5) FU 0478 (5), City of Canton, Proj. 644, Stark Co. Grand total $17,219,325. CD 12-16; under LB.

▲ ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield. Bids opened 12-16.

Ill.—L. A. Albergo Constr. Co., 6422 W. Armitage, Chicago 35, Ill., LB $546,424, railroad relocation 3.04 mi. Congress St. Expressway, Cook Co.

Ill.—Calumet Coal Co., 4540 Marquette Ave., Chicago 17, Ill., LB $302,659, 2 conc. paving 1.34 mi. South Expressway, Cook Co.

Ill.—Hoefken Builders, Inc., 222 W. B St., Belleville, Ill., LB $1,705,316, 2 conc. paving 3.55 mi., FA 112, Madison Co.

Ill.—Charles Ind Co., Paint Ave., RR 1, Rockford, Ill., LB $572,591, concrete base course, 2 conc. resurf. 1.93 mi., US 51, Winnebago Co.

Ill.—J-P Constr. Co., 1750 State St., Chicago Heights, Ill., LB $821,635, concrete base course, 8.4 resurf., 2 conc. paving 2.28 mi., Ill. 64, Cook Co.

Ill.—Truman L. Flatt & Sons, Inc., 2300 N. 16 St., Springfield, Ill., LB $185,015, bit. surf. tr. 2.28 mi., FAS 1744, Macoupin Co.

Ill.—Mitchell Constr. Co., 216 E. Madison, Herrin, Ill., LB $405,392, 2 conc. paving 0.84 mi., FA 14, Williamson Co.

Ill.—R. B. Potashnick & Regenhardt Constr. Co., P.O. Box 448, Cape Girardeau, Mo., LB $809,725, concrete base course, bit. resurf. 0.8 mi., conc. paving 0.23 mi., US 51-Ill. 3 and Alexander Co.

Ill.—Powers Thompson Constr. Co., 27 S. Chicago St., Joliet, Ill., LB $974,023, concrete base course, wid.n. 5.14 mi., concrete base course, 2.44 mi., granular 0.64 mi., Iroquois Co.

Ill.—C. Rumburg, Box 181, Fairfield, Ill., LB $105,950, bit. surf. on gravel or crushed stone base course 1.81 mi., FAS 804, Lawrence Co.

Ill.—J. P. Weatherby Constr. Co., 1016 W. Superior St., Ottawa, Ill., LB $551,521, concrete paving 3.60 mi., US 6 and 34, Bureau Co.

Ill.—Wood Electrical Constr. Co., 2326 W. Ogden Ave., Chicago 8, Ill., LB $129,357, furnish, install hy. lighting sys. on South Expressway at 130th St., Cook Co. CD 12-3.

JOY RP-900 ROTARY PORTABLES POWER JOY DRILLS AT NIAGARA PROJECT

5400 cfm of air was needed to get work started on a $37,300,000 contract. To run his fleet of Joy Challenger Drills, the contractor chose six Joy RP-900's—big, rugged compressors which are built for rough jobs.

There was no compressor down time on the job—proof of the reliability of the Joy design. This outstanding performance was due to the fact that Joy compressors have these features:

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A turbo-blown engine which provides better engine reserve and greater fuel economy.

A large, replaceable-element oil filter which minimizes compressor maintenance.

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The RP-900 compressors power these big TWM-5 Challenger drills, putting down 4½" holes to 30 ft. without a steel change.

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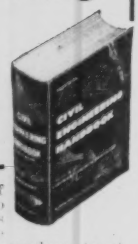
to help you solve everyday problems QUICKLY



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▲ John C. Tully Co., 33 N. LaSalle St., Chicago, Ill., LB $1,084,000, Contract 15, southwest intercepting sewer, Hodgkins, CHICAGO, ILL., Metropolitan Sanitary Dist. of Greater Chicago, 100 E. Erie St., Chicago, Ill. CD 12/9, under LB.

▲ MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing, Mich.—L. A. Davidson, 213 E. St. Joseph St., Lansing, Mich., CA $3,842,948, 6.98 mi. section dual roadways and structures on Detroit-Chicago Expressway (U. S. 12 relocation) from Kalamazoo-Calhoun Co. line west to Main St. south of Battle Creek, incl. structures Renton and Helmer Rds., Capitol Ave. (present M-78), Riverside Dr. and new M-78 relocation west of Main St., Kalamazoo and Calhoun Counties, Mich.—Lewis & Frisinger Constr. Co., 2000 S. Industrial Hy., Ann Arbor, Mich., CA $579,271, 8.2 mi. grading, drainage and bit. surf. M-72 from Fairview east to Alcona Co. line, Oscoda Co. Bids Nov. 5. CD 11/14, under LB.

BUILDINGS—LB & CA

▲ Hellrung Constr. Co., 101 Cherry St., Alton, Ill., CA $1,853,000, hospital addn., ALTON, ILL., Alton Memorial Hospital, Memorial Dr., Alton, Ill. CD 11/3, under LB.

Buckley Constr. Co., 4604 Gravois Ave., St. Louis 16, Mo., CA $629,653, 1 story, 41,000 sq. ft. brick, concrete blocks, structural glazed tile, steel NURSING HOME, MURPHYSBORO, ILL., Bd. Supvrs., Jackson County Court House, Murphysboro, Ill. Awarded Dec. 1. CD 12/10, under LB.

▲ Hoffman Co., P. O. Box 596, Appleton, Wis., LB $1,997,000 (11 bidders), general contract, high SCHOOL, SHEBOYGAN, WIS., Bd. Educ., Sheboygan, Wis. Bids Dec. 13. CD 11/5.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† Arkansas—BA About 1/13—U. S. Eng., P.O. Box 867, Little Rock. Bank stabilization, Schedule A, Harris Bend, repair of revetment between River miles 140.9 and 149.8; Schedule B, Hensely Bar, repair of upstream control structures, Arkansas River Watershed between River miles 121.2 and 120.0. CIVENG-0-050-59-28. CD 8/25/46.

▲† Wyo., Cheyenne—DIESEL ENGINE GENERATORS, etc.—BA 1/16—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., 18 diesel engine generators (470-500DW) and 6 switch gears (installation by others), 9 generators and 3 switch gears, Warren Air Force Base, ENG-25-066-59-64, $2,000,000-$2,500,000. CD 1/6.

† Tex., Waco—OFFICERS' QUARTERS—BA 1/22—U. S. Eng., 100 W. Vickery, Fort Worth. 2 air force officers' quarters, James Connally Air Force Base, ENG-41-443-59-19. Extended date. Harper & Kemp, Thomas Bldg., Dallas, archts.-engrs. CD 11/21.

† N. M., Albuquerque—AIRCRAFT PARKING APRON, ANG—BA 1/27—U. S. Eng., Box 1538, aircraft parking apron, ANG addn., Kirtland Air Force Base, ENG-29-005-59-64B. 12/17.

BUILDINGS—BA

▲ Tex., Denton—SCHOOL FOR RETARDED CHILDREN—BA 1/14—Bd. for Texas Hospitals and Special Schools, 4405 Lamar Blvd., Austin, state school for mentally retarded children. $2,269,490. Plans deposit $50. Harper & Kemp, Thomas Bldg., Dallas, archts. CD 12/16/57.

▲ Mo., St. Louis—NURSES' HOME, etc.—BA 1/21—St. Luke's Episcopal-Presbyterian Hospital, Bd. dir., 5535 Delmar Blvd., Zone 12, 6 story, brick, masonry blocks, steel, concrete, etc., nurses' home atop present 1 story service bldg. west of Main Hospital Bldg. at 5535 Delmar Blvd. Proj. MO 23-CH-40D. $1,220,000; 2 story, brick, masonry blocks, steel, concrete, etc., academic bldg. (Nurses' School addn.), Enright Ave. west of proposed Nurses' Dormitory. Over $450,000. Plans deposit $25 each. Kenneth E. Wischmeyer, 911 Locust St., Zone 1, archt. Leslie J. Bergmeier, 6630 Clayton Rd., Richmond Heights. Zone 17, structural engr., Crawford & Witte, 6552 Clayton Rd., Richmond Heights, Zone 17, mechanical engrs. CD 6/19.

Tex., Beaumont—HOME FOR AGED—BA 1/21, Schlesinger's Home, Inc., c/o Dickson, Dickson & Assocs., archts.-engrs., Box 4286. Home for Aged, $495,000. CD 11/18/57.

▲ Iowa, Iowa City—SCHOOL—BA 1/27, Iowa City Community School Dist., junior high school, $1,268,000. Louis Kingscott & Assocs., 605 Putnam Bldg., Davenport, archts. CD 6/25.

▲ Tex., Arlington—ENGINEERING—BA 2/12—Arlington State College, 4 and 2 story, 100,000 sq. ft. engineering bldg., $1,400,000. CD 10/24.

HEAVY CONSTRUCTION—LB & CA

Valley Constr. Co., 600 17 St., Rock Island, Ill., CA $547,563, approach roadways for the expansion and improvement of the Iowa-Illinois Memorial Bridge over the Mississippi River between Bettendorf, Iowa and Moline, Ill., Contr. No. 3, IOWA-ILLINOIS, Davenport-Bridge Comm., office of Mayor, City Hall, Davenport, Iowa. Bids Dec. 3. CD 11/21.

▲ W. K. Ingram Constr. Co., 116 W. Barton St., West Memphis, Ark., CA $2,025,925, 60 in. pipe major trunk line from treatment plant, LITTLE ROCK, ARK., Little Rock Sewer Comm., Robinson Auditorium, Little Rock, Ark. Bids Nov. 19, awarded Dec. 16. CD 12/2, under LB.

Wade Lahar Constr. Co., 9219 E. Admiral Place, Tulsa, Okla., CA $546,572, 48 and 36 in. pipe line to extend from the Industrial Dist. to near the Old Hot Springs Hy., (Little Rock, Ark.).

▲† Newport News Shipbuilding & Dry Dock Co., 4101 Wash. Ave., Newport News, Va., LB $2,513,846 (est. $2,750,000), three hydraulic turbines for the Eufaula Dam and power plant, OKLAHOMA, U. S. Eng., Box 61, Tulsa, Okla. CD 9/19.

▲† Peter Kiewit Sons Co., Southeast Station, Wichita, Kan., CA $1,129,159, constr. apron, operational, alert and utilities, Clinton Sherman Air Force Base, CLINTON, OKLA., Dist. P. Wks. Officer, 8th Naval Distr., New Orleans, (Algiers) La. CD 12/2, under LB.

▲† Hood Constr. Co., Cherf Bros. & Sandkay Constructors, 8221 S. Sorenson Ave., Whittier, Calif., LB $2,235,121, est. $2,318,152 (17 bidders), water supply, Glasgow Air Force Base, ENG-45-167-59-10, GLASGOW, MONT., U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 18. CD 12/1.

▲ MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul, bids opened 12/23.

W. D. Giertsen Co., 3501 Kenwood Ave. South, Minneapolis, Minn., LB $1,722,517 (14 bidders), bridge No. 9098 over Minnesota River, Chicago and North Western RR and Trunk Hy. 14 (east bound) at Mankato between Blue Earth and Nicollett Counties. CD 12/4.

IOWA—State Hy. Comm., Ames, Iowa—Hallett Constr. Co., Crosby, Minn., CA $1,718,331, b. conc. pavement 5.988 mi., I-IG-80-2(9)76, Adair Co. Bids Nov. 18.

Iowa—Concrete Materials & Constr. Co., 4096 First Ave. N. E., Cedar Rapids, Iowa, CA $1,633,058, b. conc. pavement 6.352 mi., I-80-2(10)82, Adair Co., grand total $3,351,389. CD 11/24, under LB.

BUILDINGS—LB & CA

▲ Duke & Parnas Constr. Co., 9650 Clayton Rd., Richmond Heights 17, Mo., CA Est. $1,000,000, 100,000 sq. ft. precast PLANT and WAREHOUSE on 9 acre tract in Olivette Industrial Acres, North Price Rd. north of Olive Street Rd. (provision in lease for 50,000 sq. ft. addn. later), OLIVETTE (ST. LOUIS 24 P. O.), MO., Diamond Investment Co., 9650 Clayton Rd., Richmond Heights 17, Mo., ACF Industries, Inc., 750 3d Ave., New York, N. Y., lessee.

▲ Murch-Jarvis Constr. Co., 718 Locust St., St. Louis 1, Mo., CA $1,407,107, est. $1,450,000, 3 story, beam, pile or caisson type fdn., brick, concrete, etc. OFFICE BLDG. for State Division of Employment Security, Broadway and Washington Ave., ST. LOUIS, MO., State of Missouri Planning & Constr. Div., 100 State Capitol, Jefferson City, Mo. Bids Dec. 16. CD 12/9.

▲ McClendon Constr. Co., Box 1403, Longview, Tex., LB $1,307,800, Base Bid: SCHOOL OF BUSINESS BLDG. and POWER PLANT addn., DENTON, TEX., North Texas State College, Denton, Tex. Bids Dec. 18. CD 11/25.

▲ Nix & Carter, Utica Square, Tulsa, Okla., CA est. $1,500,000, 3 story, STORE ADDN., Utica Square, TULSA, OKLA., Vandevers Stores Inc., Tulsa, Okla., Malcolm McCune, Mayo Bldg., Tulsa, Okla., archt.

▲ I. E. Millstone Constr. Co., 8510 Eager Rd., Brentwood 17, Mo., Owner Builds, $2,000,000, 1 story, 462 x 530 ft., masonry, steel frame, concrete, etc., WAREHOUSE and 2 story OFFICE at 7001 Hazelwood Lane, Zone 14, ST. LOUIS COUNTY, MO., Mamiye & Dieckmann, 9945 Riverview Dr., St. Louis 15, Mo., archts.; Wm. C. Becker, 411 N. 7th St., St. Louis 1, Mo., engr.

▲ Lloyd J. King & Michael T. Frederics, 2532 South Stuart, Denver, Colo., own forces, $8,000,000 SHOPPING CENTER, Sheridan St., Home Development, FORT LOGAN, COLO.

FAR WEST

HEAVY CONSTRUCTION—BA

WASHINGTON—BA 1/20—State Hy. Comm., Ernest J. Ketchum, chn., Dpt. Hys., Olympia.

King Co.—steel superstructure 0.443 mi., Seattle freeway bridge across Lake Washington Ship Canal, FAP No. BI-5-4(39)169. Extended date. CD 11/25.

▲† California—BA 1/27—U. S. Eng., 751 S. Figueroa St., Los Angeles. Santa Anita Wash Channel improvs., Debris Basin to A.T. & S.F. RR., ENG-04-353-59-19. $2,000,000. Extended date. CD 12/12.

† Calif., Beale Air Force Base—READINESS CREW BLDG.—BA 1/27—U. S. Eng., 1209 8th St., Sacramento. 2 story, block, masonry and concrete with oil fired heating facilities, water supply sys., sewers, etc. Readiness Crew Bldg. Spec. 2499. ENG-04-167-59-12. $500,000. CD 10/8.

Calif., Los Angeles—SPORTS SHELL, etc.—BA 1/28—Bd. Supvrs. Los Angeles County, 501 Hall of Records, constr. sports shell and activity bldg. at City Terrace Park. $286,746. Bowerman & Hapson, 8512 Whitworth Ave., Los Angeles, archt. Bids Nov. 19 rejected. LB $500,600. CD 12/2, under LB.

† Calif., Almaden—AIR CONDITIONING, etc.—BA about 2/4—U. S. Eng., 180 New Montgomery St., San Francisco. Air conditioning and bldg. improvs., Almaden Air Force Station. ENG-04-203-59-18.

▲ Calif., Los Angeles—BA 2/4—Metropolitan Water Dist. of Southern California, 306 W. 3 St., Los Angeles, enlargement of Matheas Dam and dike, appurtenant work, Lake Mathews near Riverside. $8,000,000.

† Calif., Point Mugu—MAINTENANCE HANGAR—BA 1 21—Dist P Wks Office, Eleventh Naval Dist, 1220 Pacific Hy, San Diego. maintenance hangar, Naval Air Missile Test Center. $1,000,000-$2,500,000. CD 9 17 57.

Ore., Hood River—BA 1 28—City, City Hall, sewers and tr. plant. $157,000. Plans deposit $40. Howard, Hayes & Merryfield, Corvallis, engrs.

† Washington—BA 2 17—Bureau Reclamation, Dpt. Interior, Ephrata, furnishing labor and materials for earthwork and structures, Block 83 laterals, waste-ways and drain, Royal Branch Canal Laterals, Columbia Basin Project, northeast of Beverly. Specs. No. DC-5135, adv. ENR, CD 9 10 56.

BUILDINGS—BA

Ore., North Bend—HIGH SCHOOL—BA 1 14—Coos County School Dist., 13 C. Junior High School. Hamlin & Martin, 159 W. 12 St., Eugene, archts.

▲ Calif., San Jose—RESIDENCE HALLS—BA 1 20—State Div. Architecture, 1120 N. St., Sacramento, six 3 story, about 230,000 sq. ft. rein.-brick and concrete student residence halls, San Jose State College, W.O. 4005GC-72. $3,445,000. Plans deposit $75. CD 12 4.

Calif., San Diego—OFFICE—BA 1 21—State Div. Architecture, 1100 S. Grand Ave., Los Angeles 2, story, about 29,000 sq. ft. office addn. to Div. of Hys. Distr. XI offices, incl. rein.-con. penthouse, W.O. 4076SC. $700,650. Plans deposit $50. CD 1 9.

HEAVY CONSTRUCTION—LB & CA

▲ Johnson, Drake & Piper, 9004 San Leandro St., Oakland, Calif., LB $7,844,000 (7 bidders), general contr., phase 1, constr. tilt up precast concrete walls, prestressed concrete medium security PRISON, State Dpt. Corrections, at California Men's Colony, incl. admin. hospital, classroom, dining structure, gate house, 8 housing units, 4 recreation areas, industries shop, laundry, bakery, kitchen, canteen, central tower, boiler house, warehouse, commissary, electrical substation, ground work and utilities, W.O. 4221GC-19, LOS PADRES, CALIF., State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Dec. 23. CD 11 6.

▲ J. S. Barrett, Box 212e, Santa Ana, Calif., LB $2,667,727 (13 bidders), constr. Miller-Holder Trunk sewer and Bushard Release sewer plant No. 2 to Winterspring Ave., SANTA ANA, CALIF., Orange Co. Sanitation Dist. No. 3, 1104 W. 8th St., Santa Ana, Calif. Bids Dec. 17. CD 12 9.

▲ IDAHO—State Hy. Dpt., Boise,
Morrison-Knudsen Co., Inc., 319 Broadway Ave., Boise, Idaho, and Duffy Reed, Twin Falls, Idaho, joint bid, CA $1,279,274, constr. 4-lane divided highway, 26 ft. concrete overpass, 316 ft. underpass and plant mix bit. surf. 3.077 mi. Interstate No. 80N, and bit. surf. 18 mi. U.S. 95 and U.S. 30, Payette Co. Bids Dec. 9. CD 12 15, under LB.

▲† Winston Bros. Co., and Green Constr. Co., 1532 S. California Ave., Monrovia, Calif., CA $9,454,196, main dam and appurtenances, Government Camp for Terminus Proj. Kaweah River, Tulare Co., rolled earth-fill type and ass. dam with rock fill outer slopes, 6,800,000 cu. yd. excavation from borrow, 1,300,000 cu. yd. compacted impervious fill, 4,300,000 cu. yd. compacted pervious fill, 1,500,000 cu. yd. random rock fill, 1,900,000 cu. yd. unclassified excavation, Spec. 2582, ENG-04-167-59-1, CALIFORNIA, U.S. Eng., 1209 8th St., Sacramento, Calif. Bids Dec. 16, awarded Dec. 19. CD 12 18, under LB.

J. J. Welcome Constr. Co., Box 641, Redmond, Wash., LB $215,308, est. $264,056, (12 bidders), clearing and grading, 6.4 mi. right-of-way for Tolt River pipeline No. 1, SEATTLE, WASH., City, County-City Bldg., Seattle, Wash. Bids Dec. 17. CD 12 2.

▲† Manson Constr. & Engr. Co., 5209 E. Marginal Way, Seattle, Wash., J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N.C., Perini Corp., 73 Montvait Ave., Framington, Mass., and Osberg Constr. Co., 1128 N. 132 St., Seattle 33, Wash. (joint venture), CA $21,645,000, est. $19,924,080, (9 bidders), 188 x 1,150 ft. DRYDOCK, at Puget Sound Naval Shipyard, Specs. 12272-57, BREMERTON, WASH., P. Wks. Officer, Thirteenth Naval Dist., U.S. Naval Station, Seattle, Wash. Bids Dec. 17. CD 12 22, under LB.

▲† R. A. Heintz Constr. Co., 225 N.E. Columbia Blvd., Portland, Ore., CA $2,242,215, est. $3,247,208, embankment protection for Spokane, Portland & Seattle Railway as part of Ice Harbor Dam project, Pasco, CIVENG-45-164-59-15, WASHINGTON, U.S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 11. CD 12 16, under LB.

▲ WASHINGTON—State Hy. Comm., Ernest J. Ketcham, chn., Olympia,
Scarsella Bros. & Scarsella Equipment Co., 2207 S. 146 St., Seattle, Wash., CA $1,175,350 (11 bidders), clearing, draining, grading, 2 precast prestressed concrete girder bridges, concrete flat slab bridge, rein.-conc. box girder bridge and fencing on 6.606 mi. Primary State Hy. 2, Auburn to Soos Creek, FAP No. F-FG-046-1(10), King Co. Bids Dec. 16. Awarded Dec. 17. CD 12 18, under LB.

▲† N. Fiorito Co., Inc., 844 W. 48 St., Seattle, Wash., LB $2,743,907, est. $3,225,218 (5 bidders), runway access TAXIWAY strengthening, overruns and threshold lighting, Fairchild Air Force Base, Inv. 59-28, SPOKANE, WASH., U.S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids Dec. 17. CD 12 10.

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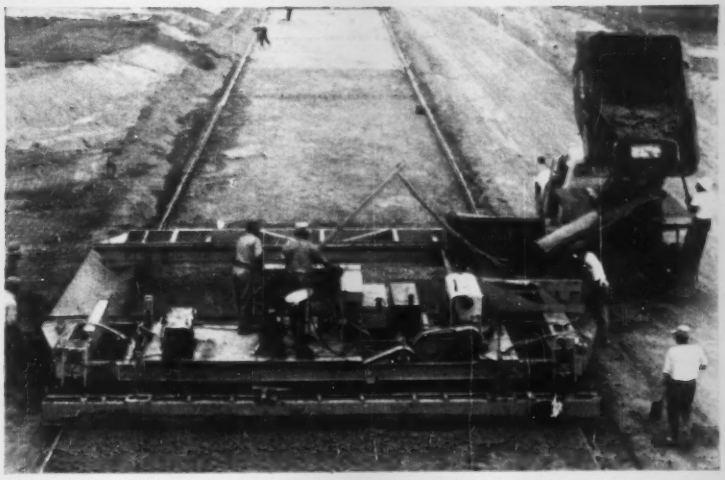

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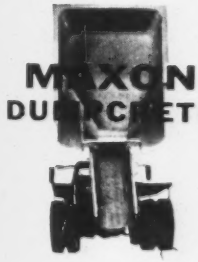

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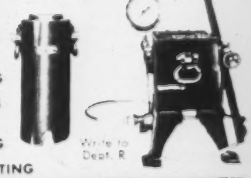

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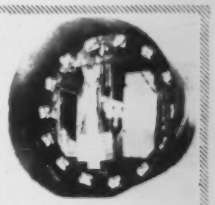

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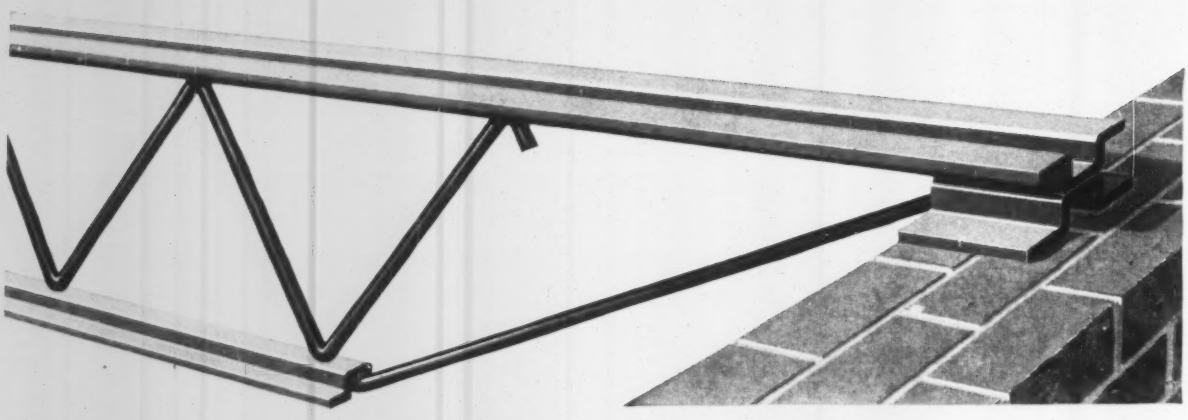

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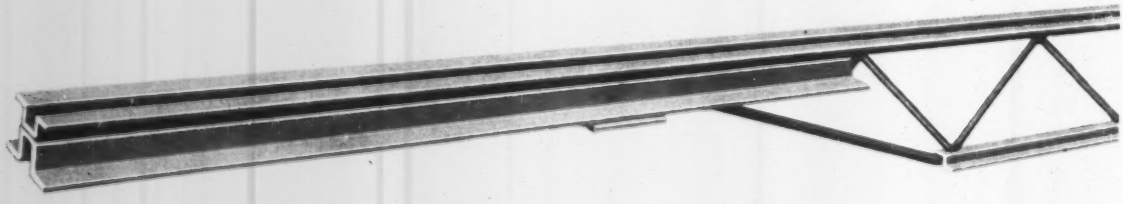

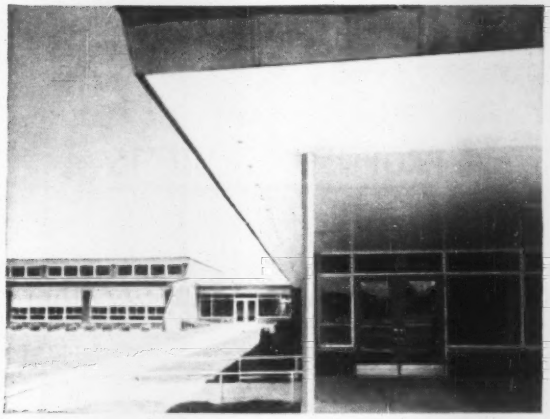

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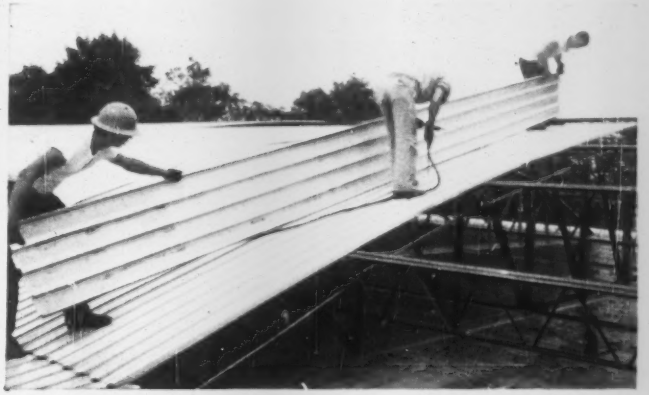

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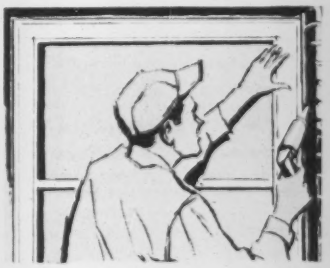

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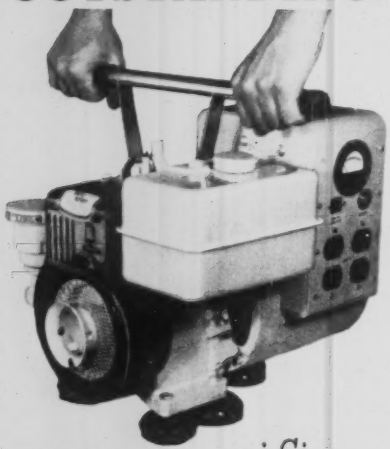

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† Morrison-Knudsen Co., Inc., 119 Bdwy., Boise, Ida. ($596,297 est., $1,148,148 (4 bidders) asph. concrete surf., widened HARDSTAND shoulders and similar surfacing, taxiway and runway access area, EIELSON AIR FORCE BASE, ALASKA; Inv. 59-16 U. S. Eng., P. O. Box 7002, Anchorage, Alaska. Bids Dec. 18. CD 11-24.

† IDAHO—Bureau P. Rds., Dept. Commerce, P. O. Box 1551, Boise. Bids opened 12-16.

Rocky Mountain Constr. Co., Missoula, Mont., LB $287,867 est. $301,049 (4 bidders), clearing, grubbing, grading and draining 5.498 mi. St. Joe River to St. Joe National Forest, Idaho forest development road, Proj. St. Joe 2184B, Shoshone Co. CD 12-3.

ARIZONA—State Hy. Dept., 206 St. 17 Ave., Phoenix.
Isbell Constr. Co., 2808 N. Pave., Phoenix, Ariz., CA $2,324,494 (subgrade, seal, select material, aggreg. base road mixed bit. stab. base and seal coat, 16.3 mi. State Rt. 70, Yavapai and Coconino Counties. Bids Oct. 24. CD 11-7.

M. Malaspina, 1901 23 Ave. S., Seattle, Wash., LB $262,968 (10 bidders), 36,310 ft. concrete lateral sewers, LB $131,071, 12,761 ft. 6- to 24-in. concrete and cement-asbestos interceptor sewers, SNOHOMISH, WASH. City, City Hall, Snohomish, Wash. Bids Dec. 16. CD 11-25.
Harold Kaeser Co., 3629 34 Ave. S., Seattle, Wash., LB $219,742 (6 bidders), sewage stabilization lagoon and pump stations, (Snohomish, Wash.)

CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento. Bids opened 12-17.
Stolte Inc., 8451 San Leandro St., Oakland, Calif., LB $344,451 (13 bidders), realignment, west approach I-5 Bridge over Sacramento River, State Sign Rte. 1A, between west end of bridge and 3rd St. on Broderick, incl. 551 ft. approach ramp, III-Yol-50-F, Yolo Co. CD 11-20.

BUILDINGS—LB & CA

▲ Trepte Constr. Co., 2001 Kettner Blvd., San Diego, Calif., LB $1,699,500 (10 bidders), constr. 4 story HOSPITAL addn., GROSSMONT, CALIF., Grossmont Hospital Dist., N. La Mesa, Grossmont, Calif. Bids Dec. 17. CD 11-28.

▲ F. E. Young Constr. Co., 2141 Main St., San Diego, Calif., LB $4,011,904 (6 bidders), STUDENT UNION and Kerckhoff HALL alterations at University of California, LOS ANGELES, CALIF. Bd. Regents, University of California, 405 Hilgarde Ave., Los Angeles, Calif. Bids Dec. 18. CD 11-21.

▲ O. L. Carpenter, Box 206, Lemon Grove, Calif., LB $1,527,500 (14 bidders), constr. Lakeside HIGH SCHOOL, GROSSMONT, CALIF., Grossmont High School Dist., Grossmont, Calif. Bids Dec. 16. CD 11-6-57.

▲ Williams & Burrows, 500 Harbor Blvd., Belmont, Calif., LB $3,813,470 (5 bidders), constr. 300 low cost PUBLIC HOUSING units, mostly eight 3 story row, 2 apartment houses and 21 1 and 2 story units, MARIN CITY, CALIF., Marin County Housing Auth., Box 466, Marin City, Calif. CD 10-22.

▲ Craftsmen Constr. Co., 1447 S. 18, Denver, Colo., LB $2,344,277 (19 bidders), SCHOOL, stadium, etc., LEUPP, ARIZ., Leupp Community School, Leupp, Ariz.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ Pacific Bridge of British Columbia Ltd. and General Constr. Co. Ltd., Granville Island, Vancouver, B. C., CA $2,213,835, cement section Seymour Falls dam for water supply storage, Seymour Falls, VANCOUVER, B. C., Greater Vancouver Water Dist., 2294 W. 10 Ave., Vancouver, B. C. CD 12-1, under LB.

BUILDINGS—LB & CA

▲ E. G. M. Cape & Co. (1956) Ltd., 1698 Western Ave., Montreal, Que., CA abt. $8,000,000 (6 bidders), superstructure, 14 story, 193 x 202 ft., on St. James St., 13 ft. on Craig St. structural steel, reinforced concrete, limestone facing, granite trim, OFFICE ADDN., St. James St. W., MONTREAL, QUE., Bank of Montreal, Place D'Armes, Montreal, Que. Bids Nov. 25. Awarded Dec. 12. CD 10-27.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

El Salvador, BA 1-13—Comision Ejecutiva Hidroelectrica Del Rio Lempa, Edificio Duenas, 4 Piso, San Salvador, excavation of Desague Canal, Cuija Proj., located in area of Rio Desague situated in NW part of El Salvador, Harza Engineering Co., 400 W. Madison St., Chicago 6, Ill., U. S. A., engr. Correction Bid Date: CD 12-12-58.

▲† PANAMA—BA 1-14—Minister of P. Wks., Panama City, Panama. Proj. 13, section 5, on Inter-American Hy. from David to La Concepcion. Plans deposit $100 from Dept. Commerce, Inter-American Hy. Program, Wash., D. C., U. S. A.

† NICARAGUA—BA 1-22—Bureau P. Rds., Dpt. Commerce, Inter-American Hy. Div., Wash., D. C., U. S. A., special subbase, crushed aggreg. base, prime coat and double application bit. surf. treatment between Honduras Border and Condega, Nicaragua, Proj. 9-A.

U. S. POSSESSIONS

▲† Florida Builders Inc., 700 43 St., St. Petersburg, Fla., CA $5,424,700, 330 units, Capehart, HOUSING, PANAMA CANAL ZONE, U. S. Eng., Box 4970, Jacksonville, Fla. Bids Nov. 4. CD 11-7, under LB.

PROPOSED PROJECTS

WATER SUPPLY

▲ Miss., Jackson—Pearl River Water Supply Dist., W. P. Bridges, pres., P. O. Box 1193. Proj. No. Miss. 22-P-1011, dam in Pearl River, Madison and Rankin Counties for water supply. $24,200,000.

N. J., Madison—Borough, Borough Hall, renovation of North Street pumping station and relaying lines. $500,000. John Silwa, Hartley Dodge Memorial Bldg., engr.

Okla., Collinsville—City, City Hall, water plant addns., extens., $175,000.

Tex., LaMarque—City, City Hall, voted bonds, water supply extens., $238,000; water works rehab. station $140,000; water storage $60,000. CD 9-26-56.

SEWERS, WASTE DISPOSAL

Ga., Blackshear—City, City Hall, sewage treatment plant, 2 pumping stations, $300,000. Tribble & Associates, Box 2104, Macon, consult. engrs.

▲ Ill., Chicago—Bd. Comrs., Cook Co., County Bldg., storm drain and pumping station South Rte. Expressway, Cottage Grove Ave. to 110 and Doty Ave., $2,756,000; storm drain structure, South Rte. Expressway, 93 St. east of Cottage Grove Ave., $2,000,000; storm drain and pumping station South Rte. Expressway, 69 St. to 79 Pl., $901,000.

▲ Ill., Collinsville—City, City Hall, sewage treatment plant, trunk sewer lines and laterals, $2,820,000. Stevens, Lochner & Weber, Buder Bldg., 707 Market St., St. Louis 1, Mo., consult. engrs.

BRIDGES

▲ Ill., Chicago—Bd. Comrs., Cook Co., County Bldg., Zone 2.
hy. bridge, South Rte. Expressway and 69 St.; railroad bridge over South Rte. Expressway, north of 91 St. carrying C.R.I. & P.-C. & W.I.-Belt R.R., $2,600,000.
hy. bridge, South Rte. Expressway, State St. at 98 St., $1,560,000.
hy. bridge, South Rte. Expressway at 100 St., $832,000.
hy. bridge, South Rte. Expressway, South Park Ave. at 102 St., $624,000.
hy. bridge, South Rte. Expressway and Marquette Rd., $812,000.
hy. bridge, South Rte. Expressway and Wentworth Ave. at 99 St., $832,000.
railroad bridge, South Rte. Expressway, I.C. R.R. west of Cottage Grove Ave., $1,560,000.
hy. bridge, South Rte. Expressway and Cottage Grove Ave. at 100 St., $832,000.
grade separation and river bridge, Northwest Expressway over T. R.R., N.W. Expressway over DesPlaines River, Park Ridge, $1,226,000.
two grade separation structures, Northwest Expressway, O'Hare Airport Road over Des Plaines River Rd., Park Ridge, $842,000.
railroad bridge, M. St. P. & S. S. M. R.R. over Northwest Expressway, Airport Lead, Park Ridge, $870,000; bridge, approach widen., and reconstr., Flossmoor, $100,000. Bids in 1959.

STREETS AND ROADS

▲ Ill., Chicago—Bd. Comrs., Cook Co., County Bldg., widen, Archer Ave. to 2 standard lanes, bit. resurf., 4.85 mi., State St. to 111th St., Lemont, $154,000; reconstr., 4 lane Arlington Heights Rd., 2.7 mi., Higgins to Central Aves., Arlington Heights, $630,000; widen, Central Ave., 4 lanes, resurf. and median strip, 1.5 mi., 65 St. to Archer Ave., Chicago, $355,000; widen, reconstr. bit. resurf. 4 lanes Central Rd., 1.8 mi., Arlington Heights to N.W. Highway, Mt. Prospect and Arlington Heights, $1,000,000; widen, 4-lane Chicago Rd., and bit. resurf., 3.6 mi., Mayfair to Sibley St., Thornton and South Holland, $600,000; grading, paving, Congress St. Expressway, Austin Blvd. to Central Ave., Chicago, $1,228,000; grading, paving, Congress St. Expressway, Central Ave. to Laramie Ave., Chicago, $710,000; widen, reconstr., resurf., Cumberland Ave., 0.76 mi., Higgins to Talcott Rds., Park Ridge, $200,000; paving, East Lake Ave., 4 lanes, 4 mi., Milwaukee Ave. to Waukegan Rd., grade separation, Northwest Hy., Glenview, $1,180,000; widen, construct, channelized medians, bit. resurf., Forest Preserve, 2.57 mi., Cumberland Rd. to Montrose Ave., Norridge, $583,000; reconstr., resurf., 4 lanes, Kimball Av., 1.47 mi., Higgins to Wilkie Rds., Rolling Meadows, $350,000; resurf., reconstr., 4 lanes, Addison Av., 1.2 mi., Pulaski St. to Belmont Ave., Chicago, $295,000.

Marquette Rd, 1 m. Cicero to Pulaski Ave., Chicago. $100,000.

Hwy. Expwy. Northwest Expressway west of East River Rd. to Sauganash R.R. Park Bridge. $2,400,000.

Hwy. paving, drainage, lighting and landscaping North-west Expressway, Sauganash R.R. to Mannheim Rd. Park Bridge. $1,200,000.

Hwy. Expwy. Northwest Expressway, Montrose to Central Ave., Chicago. $2,700,000.

Hwy. Expwy. Kennedy Rte. Expressway, 87th St. to 42nd St., overpass at 71st St., median and left turn lanes, Chicago. $1,615,000.

Hwy. Expwy. South Rte. Expressway, 69th St. to 71st St., Chicago. $624,000.

Hwy. Expwy. South Rte. Expressway, 71st St. to 79th St., Chicago. $2,080,000.

Hwy. Expwy. South Rte. Expressway, 79th St. to 87th St., Chicago. $2,080,000.

Hwy. Expwy. South Rte. Expressway, 87th St. to Burnham Ave., Chicago. $1,184,000.

Hwy. Expwy. South Rte. Expressway, 87th St. to 103rd St., Chicago. $1,976,000.

Hwy. Expwy. Ave. O, Palmer Park Blvd. to 25th St., Lancaster to Antelope Valley Freeway, Los Angeles. $590,000.

Hwy. Expwy. Ave. Q, Palmdale Blvd. to 25th St. East, Lancaster. $370,000.

Hwy. Expwy. Ave. Q, Palmdale Blvd. to 25th St. East, Lancaster. $200,000.

▲ MASSACHUSETTS

Hwy. Expwy. Northeast Expressway, Mystic River Bridge, Boston. $1,000,000. Bids April.

Hwy. Expwy. Rte. 128, Dover to Needham. $1,000,000.

Hwy. Expwy. Rte. 128, Needham to New Hampshire line, Dover. $1,000,000. Bridge, engineering and construction, Boston. Mass. consult. engrs. CD 6-29-59.

▲ NEW YORK

Hwy. Expwy. State Dist. 9, Wash. State Office Bldg., Poughkeepsie. Dutchess Co., 47.1 mi. section Interstate Turning Rte. 84, starting at Rte. 9D to Dutchess-Putnam county line near Pawling, in the four one-eighth mile sections between Fishkill and East Fishkill. FAI Project. $5,000,000.

Orange Co., 1.6 mi. Canal Arterial Rte., Port Jervis, Rte. 97 to Rte. 209. FAI Project. $1,000,000.

+ Pennsylvania

Hwy. Expwy. U. S. Rte. 19, Perry Hwy., Pittsburgh. Zone 19, plans by Robertson, Gordon & Assocs., engrs.-archts., 4 Gateway Center, Pittsburgh, Zone 22, railroad adjustments and associated highway, road, and utility relocations for Shenango River Reservoir, near Sharpsville. CD 9-19.

▲ UTAH

Hwy. Expwy. State Rte. Comm., State Capitol, Salt Lake City.

Beaver Co., 28 ft. roadway, RC slab and beam bridge, F-028-1 (11), length 1,450 ft. $200,000.

Box Elder Co., 11.1 mi. grade, gravel surface, Brigham City west, I-15-8 (21) 361. $2,000,000.

Carbon Co., 4.2 mi. grade, drain, RC surface, 42 ft. roadway between Price and Huntington, F-021-2 (2). $250,000.

2 line PMS and 2 bridges 2 ft. between Heber and Provo Canyon, F-028-1 (11). $600,000.

Garfield Co., 24 ft. roadway, RC surf. and 120 ft. bridge, 9 spans, 1 long. $260,000.

Salt Lake Co., 4 line PS between Lehi and Garfield, PMS, Inters. and Bridge, F-016-1. $1,300,000.

Wayne Co., 6.5 mi. 24 ft. roadway, RC surf. and tar, 10 ft. bridge, 3 spans, Hanksville to Bicknell, F-037-1 (2). $300,000. Bids Jan. and Feb. 1959.

EARTHWORK, WATERWAYS

New Jersey—Warren Co., Soil Conservation Dist. Bd. Co. Bd. Chosen Free Holders, Soil Conservation Dist., Branchville, N. J., and Town of Newton, Newton. Watershed protection, flood prevention, 3 dams, 109,535 cubic yds. fill, 5 reservoirs. Service. $667,819. CD 10-22-58.

▲ N. J., Atlantic City, City Hall, Atlantic Ave. $1,000,000. George Hamilton, City Manager.

▲ Ontario, Metropolitan Toronto & Region Conservation Authority, Woodbridge, representative from Wilson Ave. to mouth of Humber River, dam and channel improvements, Black Creek conservation area. Toronto. $4,040,000. James F. MacLaren, Archts., 421 Bloor St. E., Toronto, consult. engrs.

PUBLIC BUILDINGS

Ark., Rogers, School Dist., Town Hall, High School. $600,000.

▲ Calif., Nevada City, SCHOOLS—Nevada County High School Dist., Nevada County Union High School, Grass Valley and Nevada City. $1,500,000. CD 11-4-58.

▲ Calif., San Diego, HOSPITAL—San Diego County, Civic Center, plans by Wurdeman & Becket, 1422 6th Ave., Los Angeles; Paderewski, Dean & Mitchell, 206 5th Ave., San Diego, county hospital at Mission Gorge. $12,450,746. E. L. Freeland, Spreckels Bldg., consult. engrs. CD 11-11.

▲ Conn., Ansonia, HOUSING—Ansonia Housing Authority, City Hall, plans by Sept. 1, Pasanella and Klein, 1 Whitehall, 125 units, garden type apartments, 1st unit, Rolling Brook Park area. $1,000,000. CD 12-10-57.

Conn., Berlin—SCHOOLS, Town Bd. Educ., Elementary Junior High School, Mill Rd., Cheshire Junior High School, Mill Rd. $700,000. CD 10-10-58.

Ill., Bradley, SCHOOLS, School Dist. 307, Northeast Area, Kankakee, Walker, Hedrick & Moore, 4 E. Court St., Kankakee, Bradley-Bourbonnais High School and North St. $675,000.

Iowa, Council Bluffs, SCHOOLS, Lewis Twp. High School Bd. Educ., plans by Carr-Hirsch, C. N. 1 St., 1 sup. high school. $600,000.

Mo., Wellston, SCHOOL, Wellston School Dist. (6101 Wells Ave., Zone 14). $690,000 bond election January 31, 4 elementary schools, Ella Ave. Maryel Boulevard, 4111 N. 7th St., St. Louis 1, Mo., archt. CD 10-14.

Minn., Granite Falls, SCHOOL, Granite Falls Bd. Educ., $175,000 bonds, 1 elementary school addition, incl. bus garage. $385,000. Thorson & Cerny, 400 Metropolitan Bldg., Minneapolis, archts.

Miss., Greenville, SCHOOL, Greenville Municipal Separate School Dist., plans by H. Ken Carr, Greenville, 1 story, 4 class room school. $382,635.

N. H., New Boston, SCHOOL, Francis Wesley and New Boston Cooperative Consolidated High School, New Boston, chairman, consolidated high school. $400,000. Design 1959.

N. H., Portsmouth, SCHOOLS, City Council, 12th Dist. elementary school, Lewis Park. $450,000. Const. 1959.

N. J., Bernardsville, SCHOOL, Bd. Educ., Borough of Bernardsville, approved at referendum, 8 room elementary school, Old Polo Ground. $890,000. Thorne, Sherwood, 65 Broad St., Stamford, Conn., archts. CD 12-1.

N. J., Trenton, SCHOOL—City, City Hall, 4th elementary school. $500,000.

▲ N. Y., North Tonawanda, SCHOOL, Bd. Educ., North Tonawanda, 1 story high school. $3,000,000.

▲ N. Y., Orchard Park, SCHOOL, Bd. Educ., voted bond referendum Dec. 15, Junior High School. $2,275,000. Kideney, Smith & Fitzgerald, 220 Delaware Ave., Buffalo, Zone 2, archts. CD 11-28.

N. Y., Warsaw, SCHOOL—Warsaw Central School Dist., Warsaw, elementary school. $600,000.

▲ O., Cincinnati, LABORATORY—University of Cincinnati, Burnet Woods Park, Kettering Laboratory, Wing of Chemistry, University. $1,250,000.

Pa., Dillsburg, SCHOOL, Northern Dist., Dillsburg, R. D. 2, grade school. $504,000.

Pa., Hanover, SCHOOL, Hanover School Dist., school bldg. $350,000.

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Pa., Norristown—PARKING GARAGE—Norristown Pa. Parking Auth., plans by Wallace & Warner, Lancaster and Martin Sts., Bryn Mawr, parking garage, Lafayette St. $344,000.

▲ Pa., York—SCHOOL—Central Union School Dist., 1349 N. Pine St., high school, $2,430,500.

▲ Tex., Austin—KITCHEN, etc.—Bd. for Texas State Hospitals & Special Schools, 4405 Lamar Blvd., reconstr. main kitchen, dining room, recreation hall, $1,000,000.

▲ Tex., College Station—APARTMENTS—A&M College of Texas, plans by Henry Mayfield, Jr., (college archt.), 316 Sys. Admin. Bldg., 250 student family apartments, twenty-one 2 story bldgs. Proj. Tx-41-6-66 (3), $2,500,000. C. J. Godwin, 2317 Franklin St., Bryan, and Hollis U. Bible, 1116 Hawthorne St., Houston, consult. engrs. CD 7-18-57.

▲ Tex., Houston—SCHOOL—East & Mount Houston Ind. School Dist., Box 600, $1,350,000 bond election Jan. 10. Junior High School and school addn. CD 9-3-57.

Tex., Lufkin—HOSPITAL—Angelina Co., Courthouse, Lufkin, hospital, $350,000.

▲ Wash., Bothell—SCHOOLS—School Bd. Dist. 46, plans by R. H. Burkhard, 2120 S.W. 152 St., Seattle, junior high school, $1,100,000. CD 12-16; Plans by Young, Richardson & Carleton, Central Bldg., Seattle, Zone 4, Lockwood elementary school, $500,000; Plans by Hovind, Hartthorne & Smith, 1500 Westlake Ave. N., Seattle, West Hill elementary school, $500,000.

COMMERCIAL BUILDINGS

▲ Calif., Roseville—RETIREMENT HOME—Christ Unity Church, 1025 9th St., Sacramento, plans by Grant Cleveland, 1445 Alhambra Blvd., Sacramento, retirement home, 70 acre site near here, $3,500,000.

▲ Calif., West Palm Springs—CONVENTION HALL, etc.—Southern California Land Development Co., c/o Oscar Lee Larcht., 400 N. Robertson Blvd., Los Angeles, convention hall, 200 room motel, club house and radio station, $4,000,000.

Conn., Groton—SHOPPING CENTER—Groton Shopping Mart, Inc., Poquonnock Rd., for Chain Stores, 35,000 sq. ft. for 15 specialty shops, $970,000.

▲ Conn., Milford and Orange—HOUSES—Clement P. Pascarella, Old Tavern Rd., Orange, 35 houses, Clement Lane, $1,050,000.

▲ Ill., Dalton—SHOPPING CENTER—Robert R. Baum Realty Co., 715 N. 111 St., Chicago, plans by Simpson & Peck Inc., 7947 S. Exchange Ave., Chicago, Almar Plaza shopping center, incl. parking area, southeast corner 154 St. & Cottage Grove, $1,000,000.

▲ Ill., Harwood Heights—MOTEL—Holiday Bowl Corp., 100 W. Monroe St., Chicago, plans by Sidney H. Morris & Assocs., 134 N. LaSalle St., Chicago, 100 unit Motel, incl. bowling alleys, parking area, Lawrence and Harlem Aves., $4,000,000. CD 12-10.

Ky., Louisville—MOTEL—Town Terrace Inc., c/o Alan L. Bates, archt., Lyndon, Ky., 3 story, 124 room downtown motel incl. swimming pool, roof garden, S. 2nd St. between College and Jacob, $900,000.

▲ Mass., Braintree—RECREATION CENTER—Owner, c/o J. A. Sciuzzo & Co., 914 Washington St., recreation center, incl. swimming pool, auditorium and restaurant, etc. Rte. 128 and Southeast Expressway, $4,000,000. Constr. 1959.

▲ Mass., Lexington—APARTMENTS—Owner, c/o Charles H. Cole, 55 Waltham St., 15 garden type apartments, incl. 11 units, Emerson Rd., $1,500,000.

Mass., Winchester—HOSPITAL—Winchester Hospital, 41 Highland Ave., plans by James H. Ritchie & Assoc., 114 Clarendon St., Boston, Mass., hospital addn., $750,000. Constr. 1959.

▲ Mo., St. Louis County—HOSPITAL—Sisters of Mercy, St. John's Hospital, 307 S. Euclid Ave., St. Louis 10, plans by Bernard F. McMahon, 111 S. Meramec Ave., Clayton 5, Mo., 12 story, hospital, central tower, incl. 11 story nurses home and school and convent, chapel, gymnasium, power plant and laundry, parking areas, Ballas and Conway Rds., $14,000,000. Louis Kreisher and Hale & Harvie Assocs., 915 Olive St., St. Louis 1, Mo., structural engrs., Delaney, Shelton & Assocs., 4908 Delmar Blvd., Zone 8, mechanical engrs. Van & Vierse, 7908 Bonghomme Ave., Clayton 5, Mo., electrical engrs. CD 1-22.

▲ N. J., Hackensack—HOSPITAL—Hackensack Hospital, 22 Hospital Place, hospital wing addn., $2,500,000.

▲ N. Y., Amherst—HOMES—Merrill Constr. Co., 1377 Main St., Buffalo, Creek 100 home addn. White Oaks Sub-Division, $3,800,000. (Three year program).

N. Y., East Aurora—SCHOOL, etc.—Immaculate Conception R.C. Church plans by Pauly, Hauck & Welch, 250 Delaware Ave., Buffalo, two story masonry school and auditorium, $460,000.

▲ N. Y., New York—APARTMENT—Dworman Assocs., 400 Park Ave., Zone 22, 20 story apartment, 952-958 Third Ave., southeast corner of 58th St., $2,000,000. Constr. 1959.

▲ O., Cincinnati—SCHOOL—Sisters of Mercy, 2220 Victory Parkway, plans by Maguolo & Quick, 1329 Glenmore, 2 story, brick, stone, 1000 student school for girls, Oakwood Ave., $2,500,000. Constr. Spring 1959. CD 4-19.

▲ O., Granville—DORMITORIES—Denison University, plans by Gehran & Seltzer, 101 Park Ave., New York, N. Y., 2 women's dormitories, $2,000,000. Bids in middle of February. CD 6-19-56.

▲ Tenn., Madison—APARTMENT HOTEL—Layman's Foundation, 7th Day Advent.st Church, Madison, plans by Donald Cowan, Nashville Trust Bldg., Nashville, 90-100 unit apartment hotel for elderly persons, $1,000,000.

▲ Tenn., Nashville—APARTMENT HOTEL—Nashville Presbyterian Church, c/o Donald Cowan, archt., Nashville Trust Bldg., 5 story apartment hotel for elderly persons, $1,400,000.

Tex., Fort Worth—HOSPITAL—Fort Worth Childrens Hospital, Bd., 2400 Winton Terrace W., revised plans by Preston M. Geren, 1607 Fort Worth National Bldg., 2 story masonry steel, concrete hospital, Pruitt and 6th Ave., $750,000.

Tex., Houston—SCHOOL—St. Agnes Academy, the Dominican Sisters, (operators), 3901 Fannin St., school, Piney Point, $750,000. CD 1-24-56.

Tex., Longview—STORE—Sears Roebuck & Co., 925 S. Homan, Chicago, Ill., store, $600,000. Constr. 1959.

▲ Tex., Midland—STORE—Sears Roebuck & Co., 925 S. Homan St., Chicago, Ill., department store, $1,000,000. Constr. 1959.

▲ Wash., Renton—DEPARTMENT STORE—Sears Roebuck & Co., 925 S. Homan St., Chicago, Ill., plans by Young, Richardson & Carleton, Central Bldg., Seattle, 2 or 3 story, 120,000 sq. ft. department store, $1,000,000. Work to start next year.

▲ Ont., Kenora—HOSPITAL—Kenora General Hospital Bd., Kenora, plans by Smith-Carter-Searle Assocs., 65 Dewdney Ave., Winnipeg, 3/4 story, hospital, $3,000,000. CD 4-11.

Sask., Melville—HOSPITAL—St. Peter's Hospital Bd., plans by Storey & Marvin, 1013 McCallum Hill Bldg., Regina, 3 story, 42 x 93 ft. hospital addn. $600,000. CD 9-30.

▲ Sask., Yorkton—HOSPITAL—Yorkton Union Hospital Bd., Yorkton, plans by Black, Larson, McMillan & Assocs., 1 Black Block Regina, 2 story, full basmt., masonry, steel, 150-bed hospital, $1,297,739. Constr. in Spring. CD 8-15.

INDUSTRIAL BUILDINGS

Ala., Mobile—WAREHOUSE—The Ruberoid Co., Emogene St., warehouse addn., $500,000.

▲ Tenn., Nashville—PLANT, etc.—General Shoe Corp., 111 7th Ave., N., plans by John Charles Wheeler, 2000 Warfield Dr., 80,000 sq. ft. mfg. plant, $1,000,000. Constr. 1961, 200,000 sq. ft. distr. center, $1,000,000. Constr. 1962, 200,000 sq. ft. headquarters office bldg., $3,500,000. Constr. 1963-64, constr. 80,000 sq. ft. shoe mfg. plant for women, $1,000,000. Constr. 1960, constr. 80,000 sq. ft. men's shoe mfg. plant, $1,000,000. Constr. 1959.

Tex., Fort Worth—WAREHOUSE—Sears, Roebuck & Co., 925 S. Homan, Chicago, Ill., 80,000 sq. ft. warehouse, Katy Lake Site and Katy R.R., $550,000.

Tex., Henderson—PLANT—Henderson Clay Products, 421 ft. long tunnel kiln, 2-184 ft. long each, twin track dryers, $800,000.

▲ Wis., Milwaukee—PARKING, etc.—Allen-Bradley Co., 136 W. Greenfield Ave., plans by Scott & Klippenburg, 5623 N. Lake Dr., parking-office-laboratory bldg., $5,000,000.

UNCLASSIFIED

▲ California—GAS ENGINE COMPRESSORS—Southern Counties Gas Co. and Southern California Gas Co., 810 S. Flower St., Los Angeles, two 2,000 hp. turbo charged gas engines compressors at Needles Gas Compressor Station, M. A. Nishkian & Co., 3764 Long Beach Blvd., Long Beach, Zone 7, consult. engrs.

Maine—PARK IMPRVS.—State Park Comm., State House, Augusta, park imprvs., roads, etc., Moosehead Lake, $157,000; State Park, Cape Elizabeth, Two Lights Area, $155,000; development Moose Point State Park involving roads, grading, clearing, etc., Searsport, $195,900. Constr. 1959.

▲ Ill., Chicago—LIGHTING SYSTEM—City, City Hall, $15,000,000 bond election June 2, electric street lighting sys.

N. J., Asbury Park—BATHING PAVILION—City, City Hall, plans by Rudolph Kruger, 11 Hill St., Newark, bathing pavilion at Ocean Blvd. and 4 Ave., $450,000.

▲ Texas, New Mexico and Arizona—CRUDE OIL LINES—Transwestern Pipeline Co., Warren Petroleum, Monterrey Oil Co., Fidelity Union Life Bldg., Dallas, Tex., 635 M. 24 in. crude line from Perryton and Fort Stockton, Tex. to Roswell, N. M., $37,100,000. 630 mi. 30 in. crude line Roswell, N. M. to Topock, Ariz., $46,900,000.

Tex., San Antonio—GOLF COURSE, etc.—Canyon Creek Country Club, L.T.L. Lockabaugh, Jr., 950 Mary Dr. N. E., two 18 hole golf courses and one 18 hole par 3 course, $125,000, 2 swimming pools, $80,000, outside Hollywood Park.

Washington—SUBSTATION, etc.—Snohomish Co. Public Utility Dist., enlarge substation, Everett, $265,000; substation at Silver Lake, $130,000; substation at Five Corners, $185,000; 300,000 gal. storage tank with related facilities, Lake Stevens, $88,000. Scheduled for next year.

Ont., Kitchener—SKATING RINK, City, City Hall, artificial outdoor skating rink, $121,226.

Que., Pointe aux Pere—SHEDS and SLIPS—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., sheds and slips on St. Lawrence River, $500,000. CD 2-8-56.

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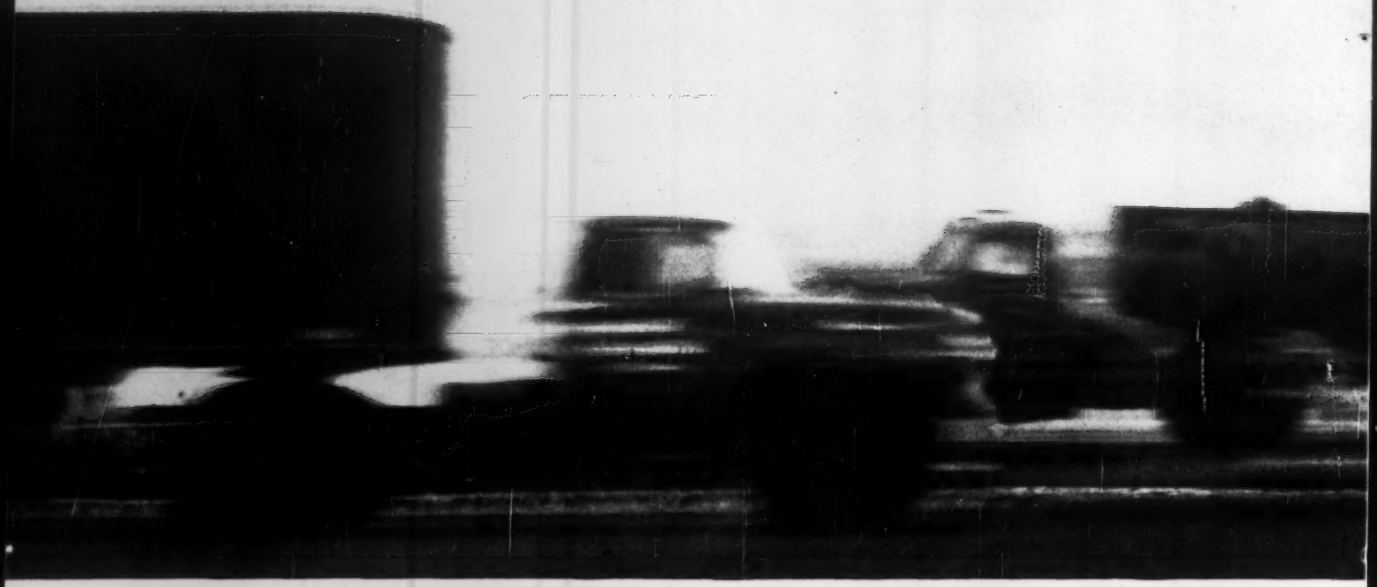

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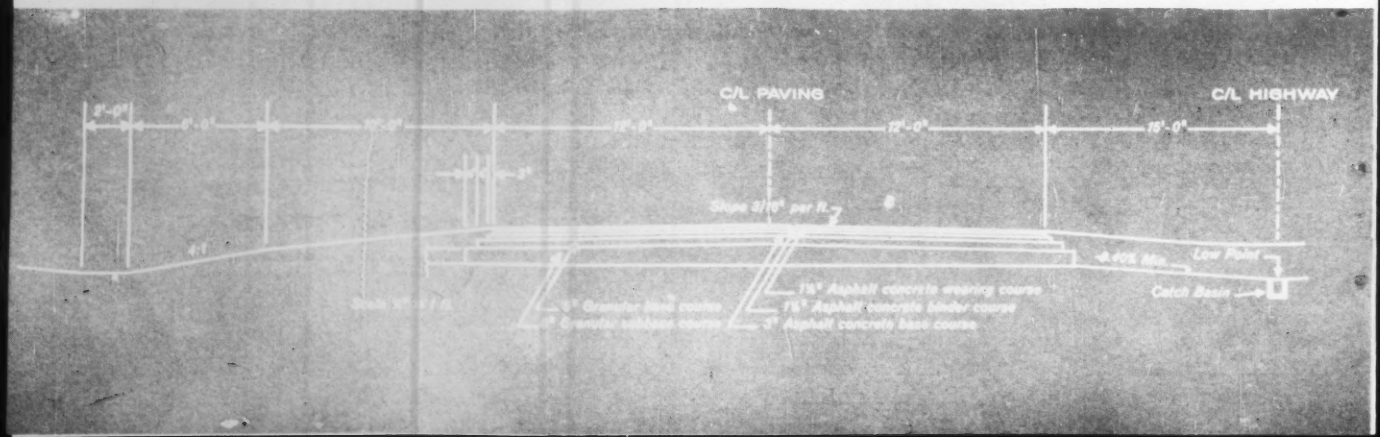
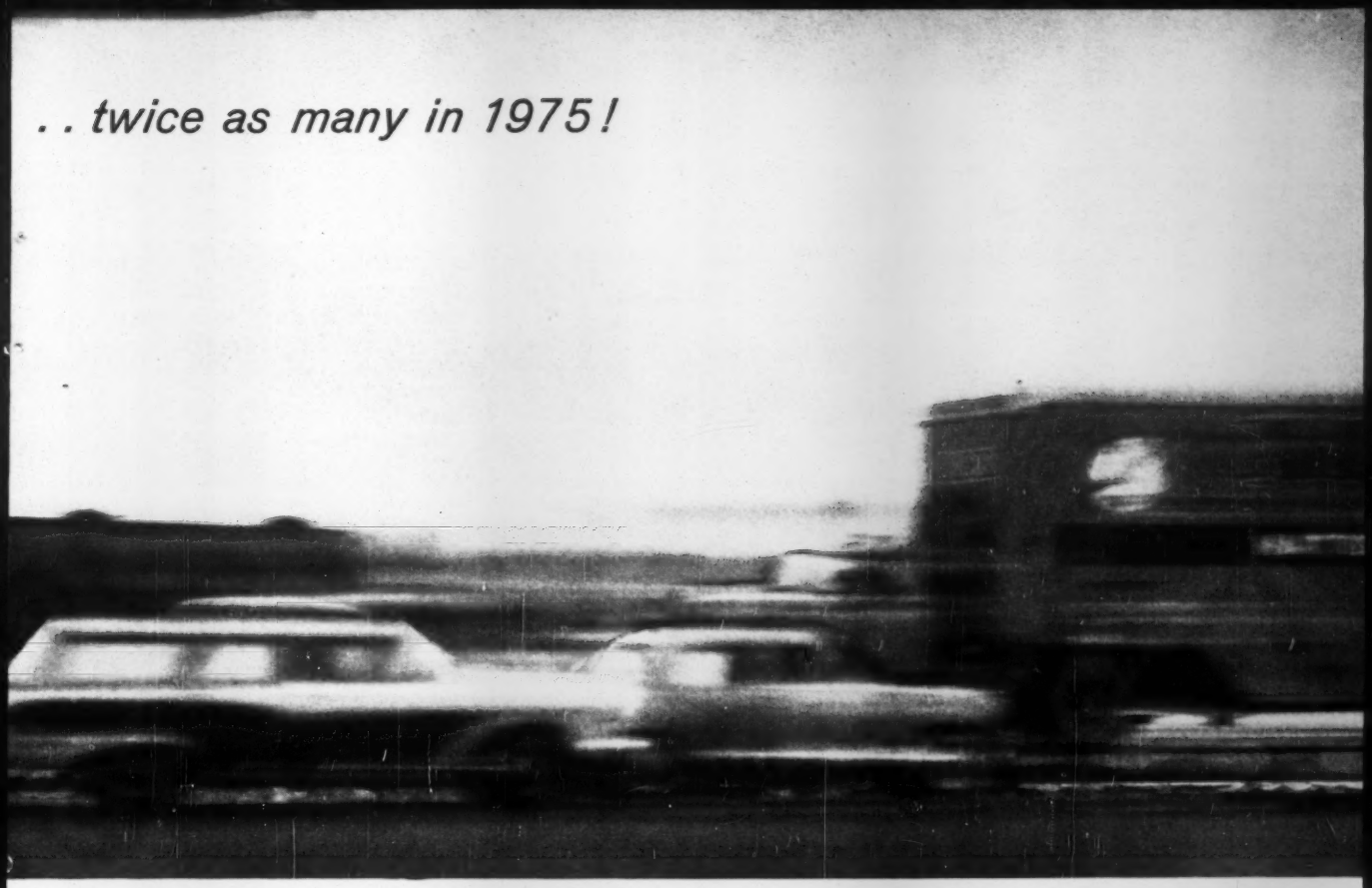


. . twice as many in 1975!



new Route 73 is Asphalt-paved

pavement structures are being built today to handle **any** desired loads with **any** desired built-in durability . . . **and these roads save money.** Cost less to build, less to maintain.

Your State can lay **more** road . . . if you design for Asphalt concrete. More road means the traffic load on **all** pavements in your State can be kept at a maintenance-saving minimum.

THE ASPHALT INSTITUTE
Asphalt Institute Building, College Park, Maryland

Glacial till in right-of-way favored Asphalt pavement construction. Whenever sub-soil of this type is found it provides excellent natural subgrades for Asphalt paving. Proximity of suitable crusher-run aggregate also favored use of Asphalt on Route 73.

Comfortable! Durable!... because it's modern Asphalt concrete. Notice the smooth-riding, skid-resisting surface. Notice the visibility, too, of the traffic markings on Route 73. With Asphalt concrete, this road sets a standard for quality construction.

GIANT for its size

Giant for work, speed-king for set-up and reading, ingenious for ease of operation... and as tough as they come for rugged field conditions.

In surprising and welcome contrast to full size performance is its neat, compact size: just 4½ x 6" overall.

With tilting screw and prismatic tubular level, at a price much lower than you would expect, the Wild N-10 deserves your consideration.

Write for Booklet N-10

N-10 SURVEYOR'S LEVEL

Full Factory Services

WILD HEERBRUGG INSTRUMENTS, INC.

MAIN AT COVERT STREET,
PORT WASHINGTON • NEW YORK
PORT WASHINGTON 7-4843

Determination of Damages For Breach of Contract

What is the measure of damages when a contract is breached?

One court says the injured party has a right to be put, financially, in the position he would have been if the breach had not occurred.

The question arose in a Connecticut case[1] under the following circumstances:

Several persons had brought building lots in an undeveloped residential section with the understanding that the seller would put a proposed street in a condition satisfactory to the municipality. The seller defaulted and the buyers had to fix the street themselves.

In allowing the buyers to recover damages from the seller, the court said:

"The general rule regarding breaches of contract, whether relating to real, or personal estate, is that the injured party shall recover that compensation which will leave him as well off as he would have been had the contract been fully performed. There is no unbending rule as to the evidence by which such compensation is to be determined. In some cases the sum which will furnish such compensation may properly be ascertained by evidence of the difference in the value of the property, upon which structures are to be placed or repairs are to be made, with and without such repairs or structures. But the object of the parties ought to be attained as nearly as possible, and that is, that the specific act agreed to be done should be performed. If the party omits to do what he stipulated, it is just, as a reasonable substitute, that he should pay the precise value of the thing which he contracted to do; and such value to be estimated at the time when the contract in question should have been executed. Wells v. Abernethy, 5 Conn. 222, 227, Belisle v. Berkshire Ice Co., 98 Conn. 689, 700, 120 A. 599, 34 A.L.R. 108."

(1) Bachman et al. v. Fortuna et al., 141 A. 2d 477, Supreme Court of Errors of Connecticut, March 25, 1958.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Giude for Contractors, Architects and Engineers;* and *Legal Cases for Contractors, Architects and Engineers.*

FIGURES recently compiled by a leading architectural magazine show that 100 top U. S. corporations represented 14.5% of the total 1957 U. S. spending for industrial and commercial construction. Raymond was selected to install foundations for 89 of these 100 biggest buyers of building services.

Naturally, we're proud of this record, but foundations for industrial and commercial construction account for just one part of Raymond's scope. We are also active in providing the supports for the Nation's highway program, constructing waterfront and offshore projects, as well as undertaking countless soil investigations. Overseas, Raymond is thoroughly equipped to fulfill contracts for complete construction projects of all types.

If you're interested in foundations, heavy construction or general construction abroad, we may be able to help you. Please write or give us a call.

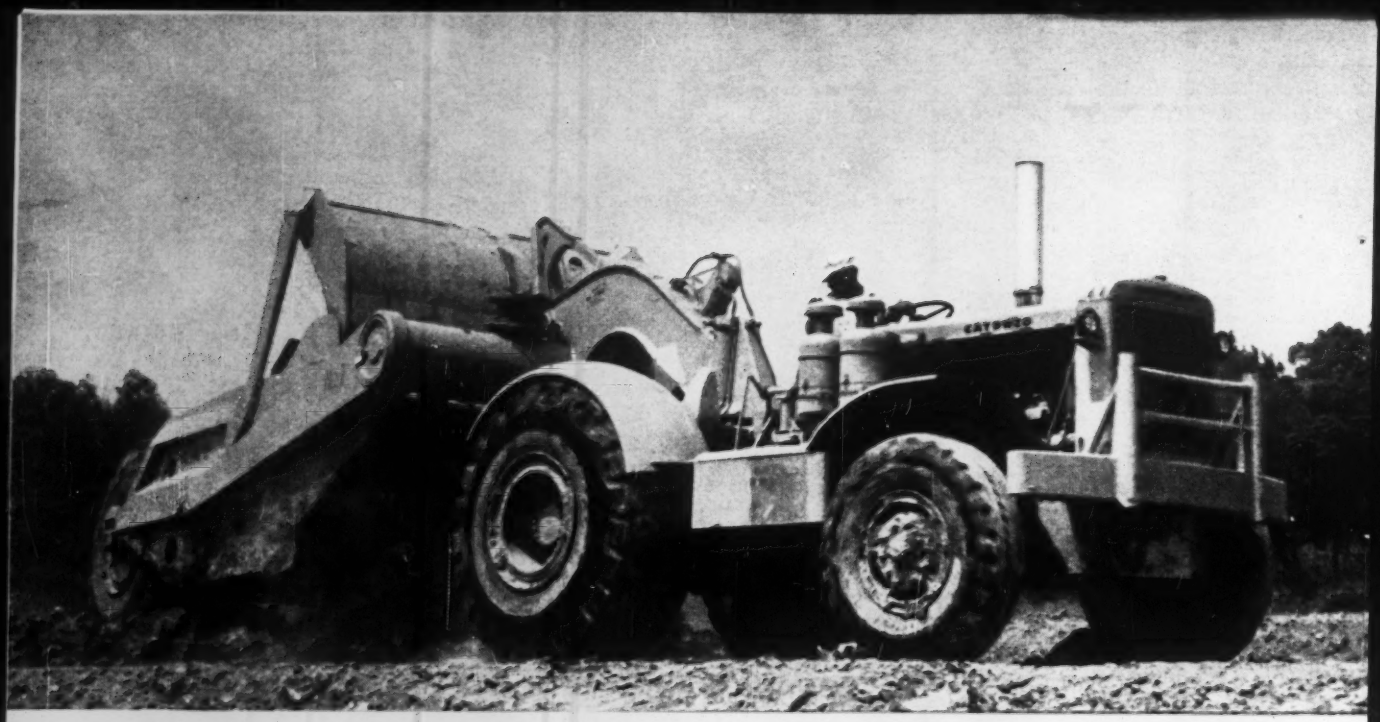
RAYMOND
CONCRETE PILE COMPANY

A Division of Raymond International Inc.

140 CEDAR STREET, NEW YORK 6, N. Y.

Branch Offices in principal cities of the United States. Subsidiaries in Canada, Central and South America.

FOUNDATIONS FOR THE STRUCTURES OF AMERICA . . . COMPLETE CONSTRUCTION SERVICES ABROAD



NEW DW20
Series G

NEW No. 456
Series B

NEW HP —345 (maximum output)—increased 8%

NEW RIMPULL —39,565 lb. (maximum)—increased 12%

NEW SPEEDS —increased rimpull—provides up to 20% faster travel speeds under normal haul road conditions

NEW CAPACITY —19.5 cu. yd. (struck)—increased 8%
27 cu. yd. (heaped)—increased 8%

NEW DW21
Series G

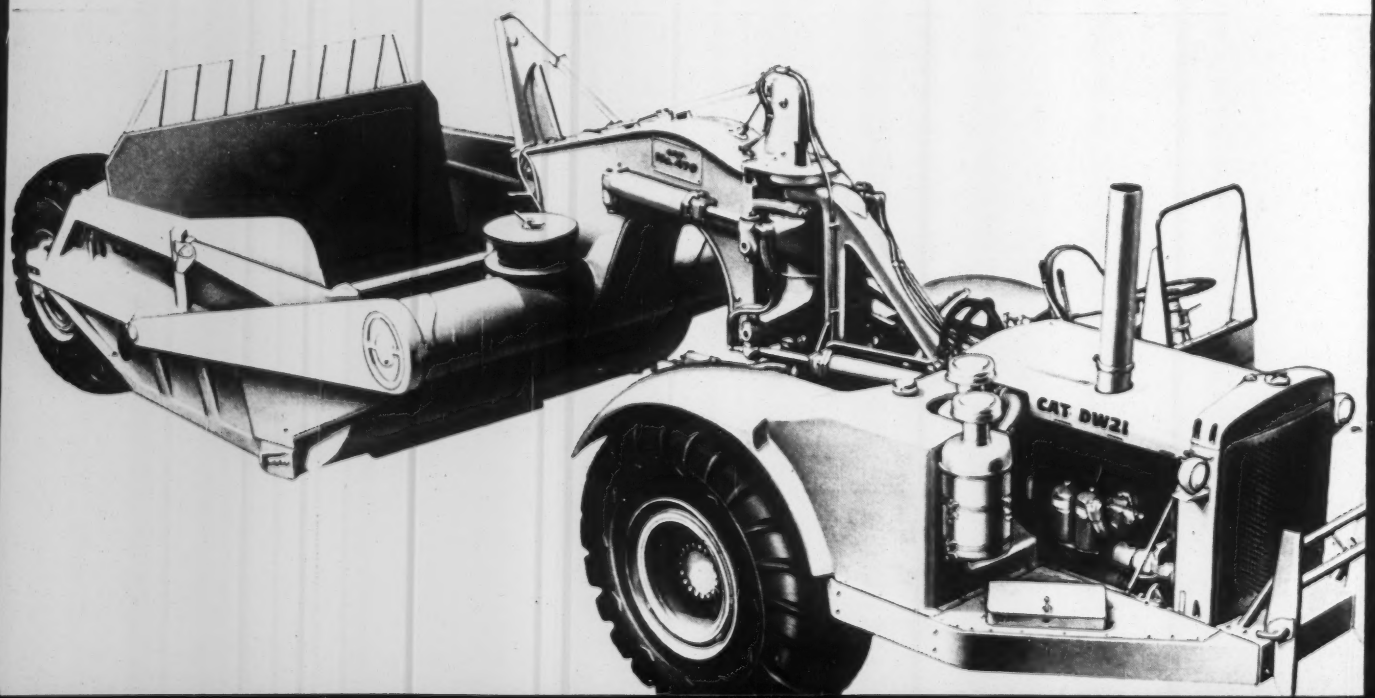
NEW No. 470
Series B

NEW HP —345 (maximum output)—increased 8%

NEW RIMPULL —49,100 lb. (maximum)—increased 12%

NEW SPEEDS —increased rimpull—provides up to 20% faster travel speeds under normal haul road conditions

NEW CAPACITY —19.5 cu. yd. (struck)—increased 8%
27 cu. yd. (heaped)—increased 8%



CATERPILLAR'S PROJECT PAYDIRT

PROJECT PAYDIRT* *pays off for you*

NEW CAT DW20 and DW21 SERIES G TRACTORS NOW 345 HP

—plus new high-capacity LOWBOWL Scrapers for faster cycles and higher production!

For down-to-earth facts about these big new Caterpillar rigs, take a look at the box scores shown here. They summarize important increases in horsepower, rimpull, speeds, scraper ratings and tire capacities that pay off for you *on the job* with faster cycles, greater production and more profit!

Note that the increased HP of the DW20 and DW21 Series G, compared with the models they're replacing, gives 12% higher rimpull. This increased rimpull provides up to 20% faster travel speeds under similar haul road conditions. Equally important, this horsepower increase was achieved without any sacrifice whatsoever in the excellent torque characteristics inherent in the Cat Super-Turbo Engine. Torque rise of the engine in the Series G models is unequaled in the earthmoving industry.

In addition to the advantages featured in the box scores, the new Series G Tractors and their matching LOWBOWL Scrapers deliver the *proved* reliability of Caterpillar-built machines. To handle increased horsepower and increased capacity, both have been improved in design and structure. The tractors, for example, have stronger final drive gears and improved transmission shifter forks. The scrapers have stronger bowls, push frames, draft frames and aprons. All these and other improvements result in better service life, less maintenance and lower cost dirt.

Here are modern, heavy-duty wheel rigs geared to the needs of today's highly competitive market—rigs that meet your requirements for moving more dirt at lower cost than ever. Get the complete facts about them from your Caterpillar Dealer. Call him today and set a date for a demonstration!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

BORN OF RESEARCH
PROVED IN THE FIELD

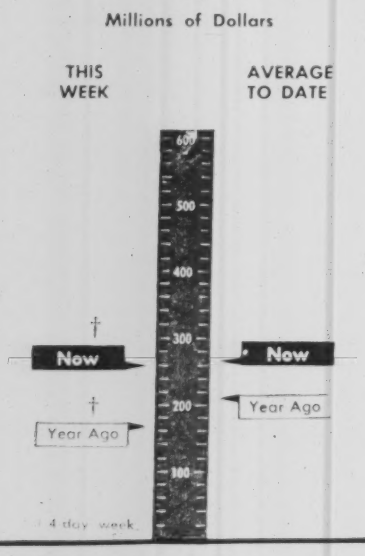
TIRES: 29.5-29 (28-ply rating) are now standard in place of the former 29.5-29 (22-ply rating)—a tire capacity increase of 16% to match the increased scraper capacity, heavier machine weight and higher speeds made possible by more HP. Note: On the DW20 Series G, the front tires remain the same—14.00-24 (16-ply rating).

CATERPILLAR'S PROJECT PAYDIRT

***PROJECT PAYDIRT:** Caterpillar's multi-million-dollar research and development program to meet the challenge of the greatest construction era in history with the highest production earthmoving machines ever developed.

Construction Scoreboard

CONTRACT AWARDS

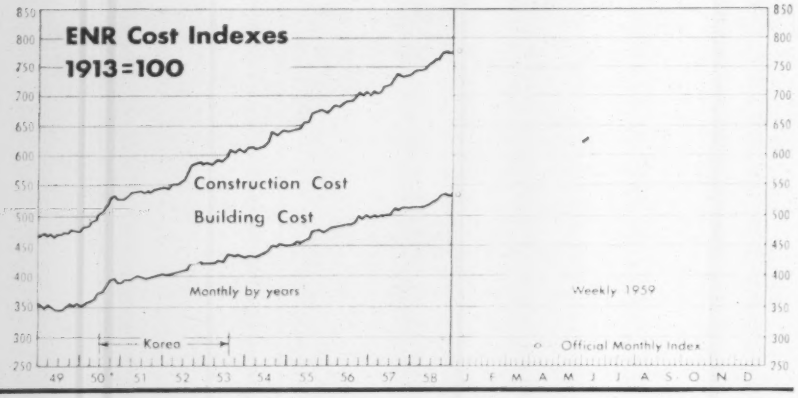


CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Jan. 1 1959	% Change from Dec. 4 1958	% Change from Jan. 2 1957
Construction Cost	778.28*	+0.6	+4.7
Building Cost	536.23*	+0.3	+3.8

*Official Monthly Index January 1959.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
To convert above indexes to 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



AMOUNT OF CONTRACTS LET

By Ownership	†This Week millions	Cum. 2 wks 1959	Chge '58-'59 %
All Heavy Constr.	$260.0	$533.2	+2.4
Private	85.4	147.1	-19
Public	174.6	385.8	+56
State & Municipal	144.1	291.2	+34
Federal	30.5	94.6	+220
By type of Work			
Public			
Waterworks	11.5	11.7	+58
Sewerage	9.8	34.4	0
Bridges*	25.4	37.4	+142
Highways	51.1	107.3	+22
Earthwork, Waterways	10.8	27.4	+706
Buildings, Excl. Housing	16.9	91.8	+19
Housing	4.5	12.1	-20
Unclassified	14.6	60.8	+354
Private			
Building:			
Mass Housing	37.4	64.1	+19
Commercial	25.1	50.3	+148
Industrial	19.0	25.9	-68
Unclassified	3.9	7.0	-74

*Includes private bridges. †4 Day Week

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Jan. 1 millions	Cum. 1 wk 1959	Chge '58-'59 %
Corporate Securities	$ 1.7	$ 1.7	-86
State and Municipal:			
All Except Housing	18.0	18.0	-93
Housing			-100
Federal Loans	2.7	2.7	-18
Federal Aid			
Total Nonfederal	$22.5	$22.5	-92
Federal Appropriations:			
Projects in U. S.			
Outside U. S.			
Total New Capital	$22.5	$22.5	-92

WAGE RATES, 20-cities average

	Jan. 1959	% Change from Dec. 1958	% Change from Jan. 1958
Common	$2.504	+1.7	+5.5
Skilled (average 3 trades)	3.781	+0.5	+4.3
Bricklayers	4.027	+0.4	+3.8
Structural Ironworkers	3.803	+0.4	+4.5
Carpenters	3.544	+0.6	+4.6
Equipment operators (average three types)	3.378	-0.5	+4.0

MATERIAL PRICES, 20-Cities average

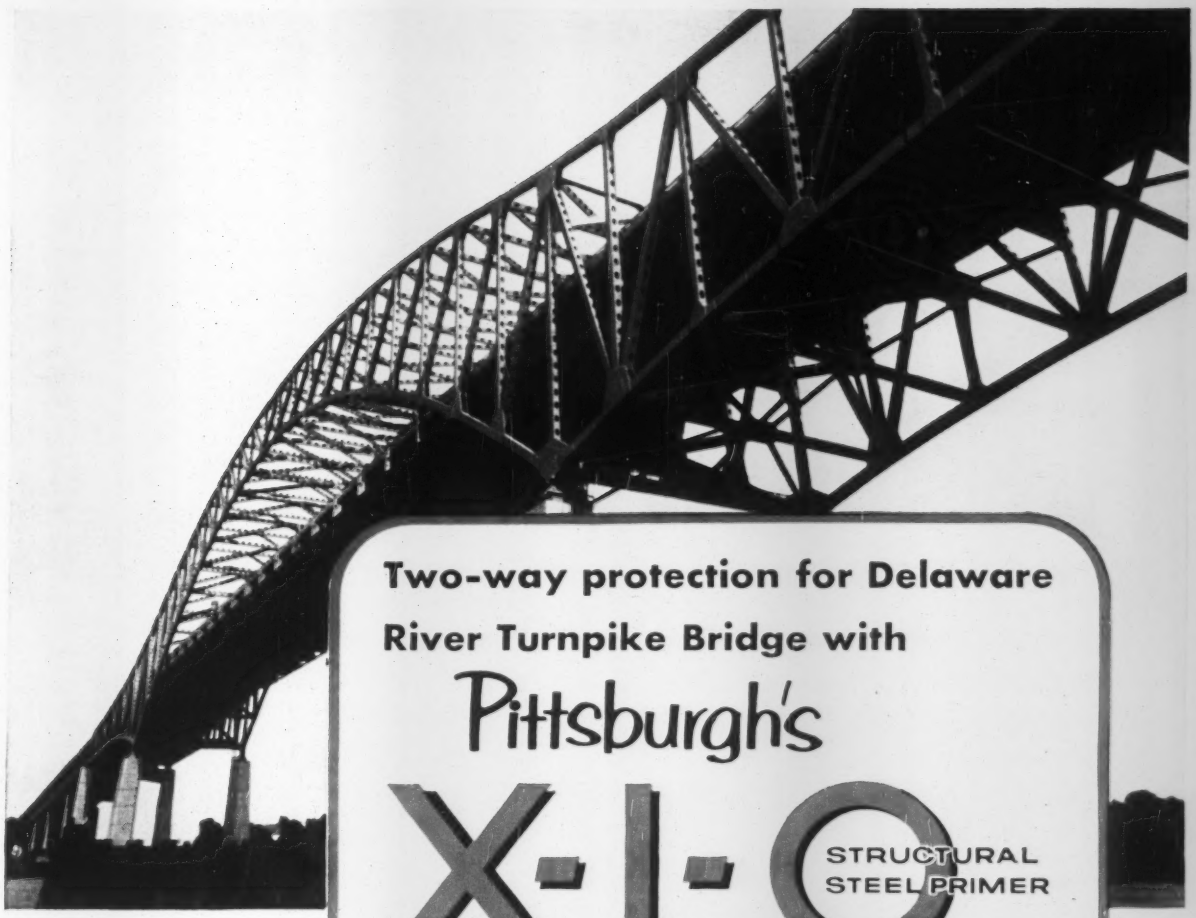
Structural Steel (average 3 mills), per cwt	5.50	0	+4.3
Lumber, 2x4 Fir, per M fbm	111.708	-0.3	+1.8
Lumber, 2x4 Pine, per M fbm	102.750	+0.3	+3.5
Cement, bulk, per bbl	3.983	+0.7	+0.6
Sand, per ton	2.550	0	+2.3
Ready-mixed concrete, per cu yd	13.958	+0.9	+0.9
Gypsum sheathing, ½"x2'x8', per Msf*	62.876	.0	+0.1
Fiber board sheathing, ½" sq. ed., per Msf*	71.545	0	-0.3
Mineral wool insulation, 3" batts, per Msf*	70.355	-0.2	-0.9
Crushed stone, 1½", per ton, CL	2.754	-3.3	-3.0
Concrete blocks, sand/gravel, 8"x8"x16", each*	.229	0	+0.4

	Dec. 1958	Nov. 1958	Dec. 1957
Brick, common per M	37.543	+0.3	-0.2
Lime, hydrated finishing, per ton, CL	38.778	+0.2	+5.8
Structural clay tile, 3x12x12", per M, 2,000 up*	179.908	+0.3	-2.7
Vitrified clay sewer pipe, std 12", per ft	1.327	-1.0	+2.2
Concrete sewer pipe, 12", per ft	1.359	+3.4	+10.4

*Delivered, truck lots

ENR INDEX REVIEW

	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
1958						
Jan.	743.44	155.85	516.79	146.90	368	106
Feb.	743.77	155.92	515.78	146.62	446	129
Mar.	744.41	156.05	516.09	146.70	520	150
Apr.	745.78	156.34	516.61	146.85	585	169
May	751.57	157.56	518.62	147.42	674	195
Jun.	757.31	158.76	521.09	148.13	661	191
Jul.	762.52	159.85	524.29	149.03	705	204
Aug.	764.44	160.25	525.62	149.41	575	166
Sep.	773.47	162.15	535.02	152.09	541	156
Oct.	775.30	162.53	536.53	152.51	446	129
Nov.	774.12	162.28	534.96	152.07	384	111
Dec.	773.81	162.22	534.79	152.02	466	135
1958 Average	759.16	159.15	524.68	149.15	531	153
1959						
Jan.	778.28	163.15	536.23	152.43	...	...



Two-way protection for Delaware River Turnpike Bridge with Pittsburgh's X-L-O STRUCTURAL STEEL PRIMER

1. *Safeguards steel shapes against corrosion during erection*
2. *Serves as excellent foundation coat for field painting*

Excellent example of the importance of the double protection against corrosion which Pittsburgh X-L-O Primer gives to structural steel is the $14,000,000 bridge which links the Pennsylvania and New Jersey Turnpikes. This is a six-lane viaduct, composed of 31 steel spans. Its main continuous truss structure is one of the heaviest of its type in the United States. Designer of this huge bridge was George S. Richardson, of Pittsburgh, Pa. All structural steel was fabricated and erected by the American Bridge Division, United States Steel Corporation.

• **Structural shapes** for this bridge were shopcoated with Pittsburgh X-L-O Primer. This protected them against corrosion during transit and erection. It eliminated necessity of costly metal cleaning and provided uniform coverage, even over surface irregularities caused by mill scale. Thorough drying within twenty-four hours permitted prompt shipment to the job site, regardless of weather. X-L-O Primer also served as an excellent foundation for final coating.

• **Our wide experience** in supplying protective finishes for structural steel shapes of all kinds can save you time and money. Call, wire or write us for further information about X-L-O Primer or IRONHIDE and METALHIDE for field coating. Pittsburgh Plate Glass Company, Industrial Paint Division, 1 Gateway Center, Pittsburgh, Pa.

PITTSBURGH® FINISHES

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

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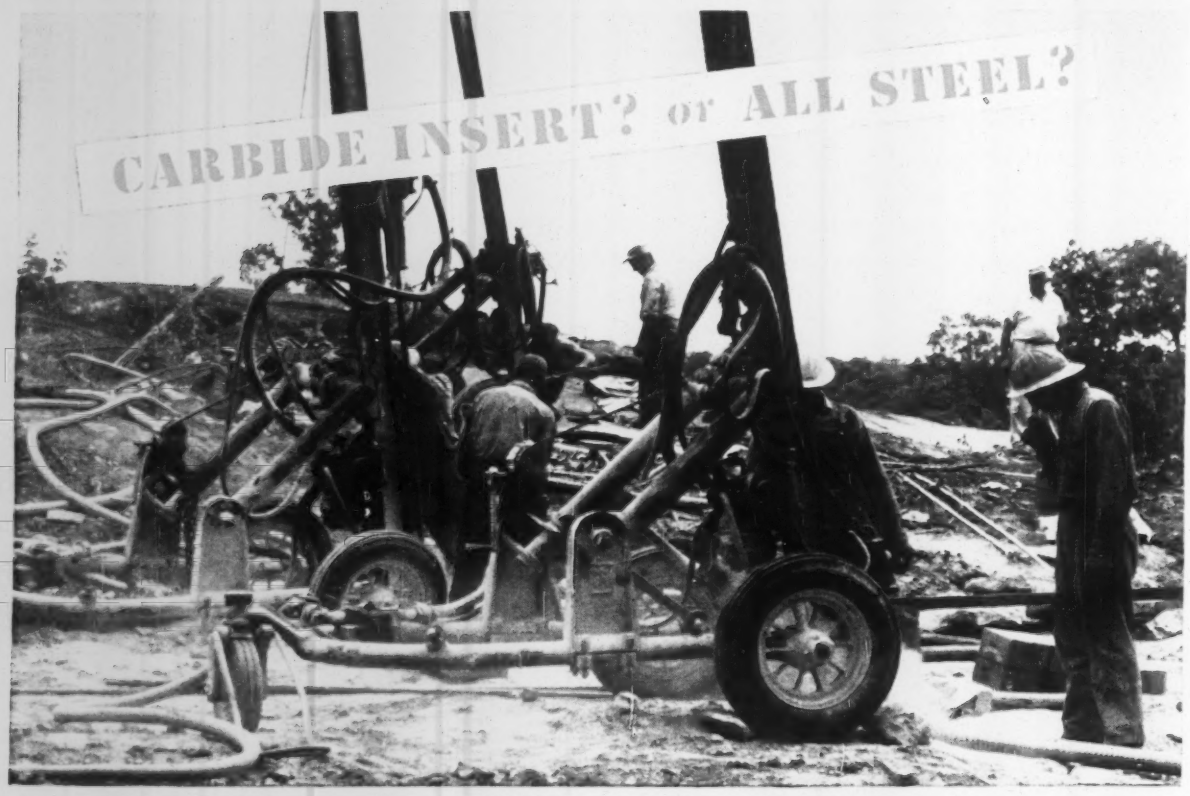


Westchester Rock, Inc., reports faster drilling, fewer bit changes in granite gneiss with TIMKEN® carbide insert bits

THE new Cross Westchester Expressway cuts through hard, abrasive granite gneiss. Drilling depths often reach 30 feet. Yet good speed and minimum bit changes are reported by Westchester Rock, Inc., of White Plains, N.Y. They're holding cost per foot-of-hole down with Timken® carbide insert bits.

You'll make good time in tough rock with these bits, too. But carbide insert bits may not be your best bet for every job. In ordinary ground, where you can drill out full increments of steel and do proper and controlled bit reconditioning, you'll get your lowest cost per foot-of-hole with Timken all steel multi-use bits.

All steel multi-use or carbide insert, Timken bits save time for your drillers because they are interchangeable in the same thread series. When drilling conditions change, you can change bits without the trouble of changing drill steels. And Timken bits last longer because their special shoulder union protects threads against drilling impacts.

To assure the quality of Timken bits, we make them from our own electric furnace, Timken fine alloy steel. No other American bit manufacturer takes this extra quality control step. Let us recommend the right bit for your next job. Just call or write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, O. Cable: "TIMROSCO".

Timken threaded all steel multi-use rock bit

Timken threaded carbide insert rock bit

TIMKEN®

your best bet for the best bit for every job

Stakes Change in Europe and Argentina

Trade agreements and currency changes bring new prospects for U. S. construction industry

Monetary and trade changes in Argentina and Europe are giving the U.S. construction industry some new hopes and a few worries.

The European Common Market became a reality last week. And 10 European countries made their currencies easier to convert into dollars and into currencies of other nations.

The common market forms a trade area in Western Europe with lower tariffs and less stringent import quotas for "participating" countries. France, West Germany, the Netherlands, Luxembourg, Belgium and Italy.

European manufacturers in the market area will gain an advantage over U.S. construction equipment firms who still must fight tariff barriers to gain entrance to Western Europe. However, the now-convertible European currency may encourage more European contractors to convert more of their money into U.S. dollars and, as a consequence, spend more of it on American construction equipment.

The move will mean little or nothing to American contractors because most of their work in Europe is confined to U.S. military facilities paid for with dollars.

Argentina has devalued its peso and secured $329 million in U.S. and International Monetary Fund credits in an attempt to bolster its sagging economy.

U.S. construction equipment manufacturers expect things to get better in Argentina because they can't get much worse. A shortage of capital and prohibitive import barriers have kept equipment business with Argentina to a minimum.

The peso's devaluation may mean even fewer sales of U.S. equipment in Argentina. The exchange rate has been changed from 18 pesos to about 65 pesos per dollar. Now Argentine contractors will have to pay more pesos for every dollar of credit established for buying U.S.-made machinery.

Surprisingly, U.S. manufacturers in the construction machinery field are not yelling "ouch." As one explained, "You can't be hurt much by losing a drop." Sales in Argentina are only a drop in the bucket and if that drop is spilt, the bucket still seems full."

Actually, Argentina is in dire need of new construction machinery. The country has a limited supply of equipment and most of that is old and obsolete.

• **Improvement coming?**—Two moves during the recent financial shake-up in Argentina give machinery makers hope for increased sales.

Exporters here foresee a much more liberal import program in Argentina, with lower taxes and fewer restrictions on imported construction equipment.

The $329-million loan may also provide some relief. Of the total, $179 million in credits will be granted by the U.S. Treasury, the International Monetary Fund and 11 North American banks. This is meant to help stabilize the Argentine economy and prevent the peso from fluctuating too much.

The remaining $150 million will be provided by the Development Loan Fund ($25 million) and the Export-Import Bank of the U.S. This money will finance high-priority development projects involving plenty of construction. Among them are power, transportation and industrial development projects. A substantial part of the $150-million total is expected to go for construction equipment and contractors' services.

American contractors working in economically weak countries like Argentina write protection against currency changes into their contracts. They generally specify payment in dollars or at a set exchange rate between local currency and dollars.

They protect themselves against increases in the costs of labor, material and equipment with escalator clauses that tie these costs to some index that fluctuates with the local economy. Some contractors work on a "cost-plus" contract to sidestep rising costs.

Argentina's austerity measures will probably bring tighter credit and a consequent decline in private construction. But private work in Argentina is usually handled locally anyway. U.S. contractors will be unaffected.

The Argentine government projects, which interest U.S. construction firms, will probably not be directly affected by the Argentine financial reform.

Many American companies have not bid on Argentine construction work in recent years because of the shaky financial picture there and the danger of government nationalization of their property.

Cities Can't Stop Roadbuilding

A community cannot prevent the Ohio State Highway Department from constructing a road facility within local boundaries.

That's the decision of the Cuyahoga County Common Pleas Court at Cleveland. However, it is the first test action, and the ruling is expected to be appealed to the state's court.

For several years the City of Lakewood succeeded in blocking construction of a bridge carrying a main highway over a river running through the community. The community was acting under a law requiring the highway department to obtain official community consent to build in the area.

In 1955 the legislature wrote new legislation. It gave the state highway director power to override a locality when there is urgent need for repair, reconstruction, widening, improvement and relocation of a primary state highway. Highway department officials then decided to use this law to move against the wishes of the municipality.

Lakewood filed suit in court, claiming the law was unconstitutional and that it violated existing "home rule" provisions. Common Pleas Judge Earl R. Hoover ruled that home rule privileges are restricted to matters of local self-government. He said a community can not stop the state from making an improvement "under the guise of home rule," any more than it can stop the state from building a state turnpike.

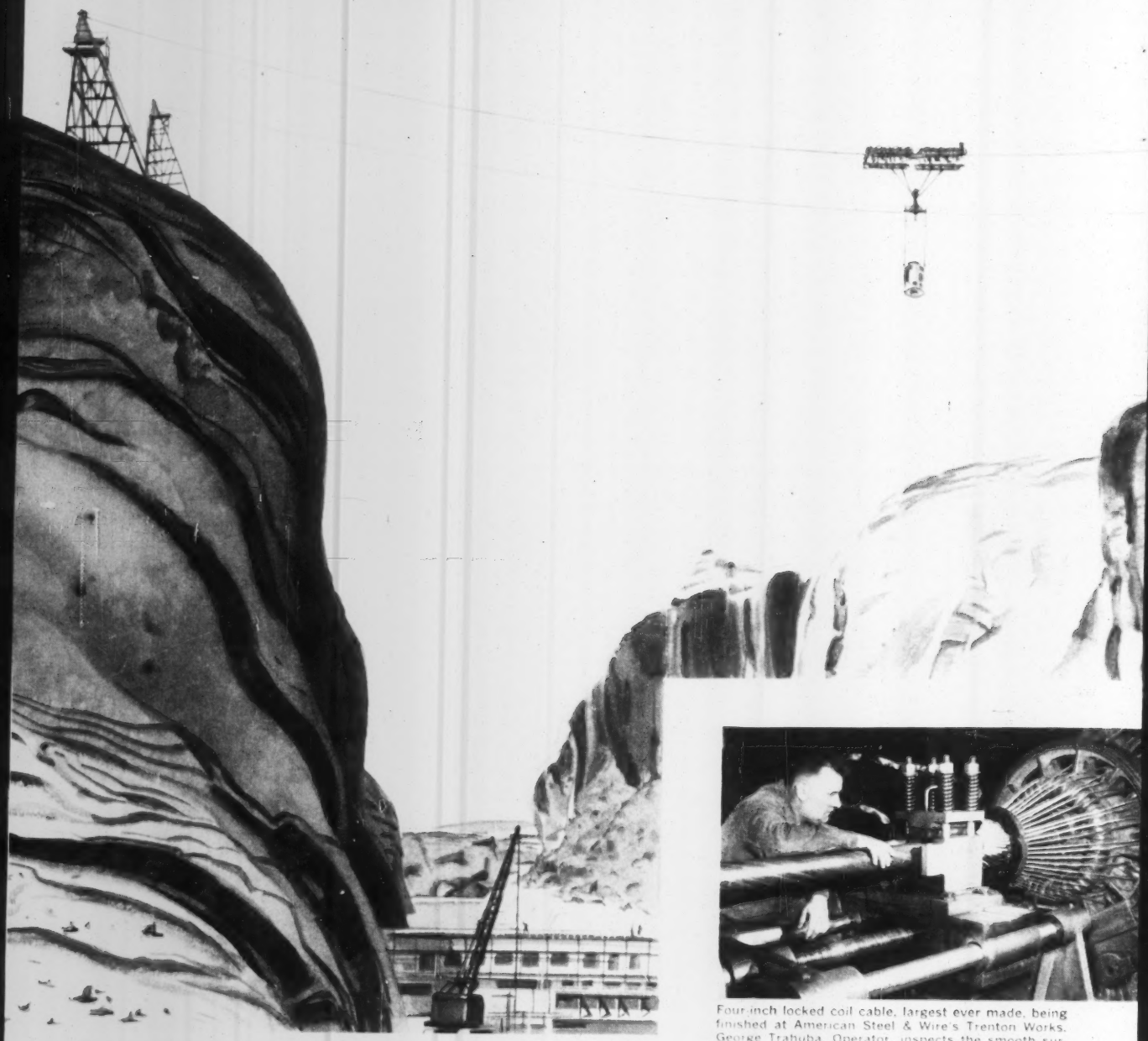
Guaranteed Estimating Is Offered Contractors

U.S. Associates of Seattle will guarantee the accuracy, within 5%, of the estimating and material take-off work it does for general and subcontractors.

The company will pay the contractor any money he is out of pocket for materials not listed on the estimate but shown on the architect's plans.

(BCI continued on page 106)

Superhighways in the sky



Artist's conception of how the two Tiger Brand Cableways will be used in the construction of Glen Canyon Dam on the upper Colorado River. The higher cableway can pass over the lower one. Both can service all areas of the construction site.

Four-inch locked coil cable, largest ever made, being finished at American Steel & Wire's Trenton Works. George Trahuba, Operator, inspects the smooth surface of the cable which will support cableway buggies capable of handling 50 tons of construction material.

Perplexed porcupine, "Sticky," inspects short "broomed out" length of the main cable made up of 312 steel wires. Over 145 tons of the cable have been made for the new dam's cableways.

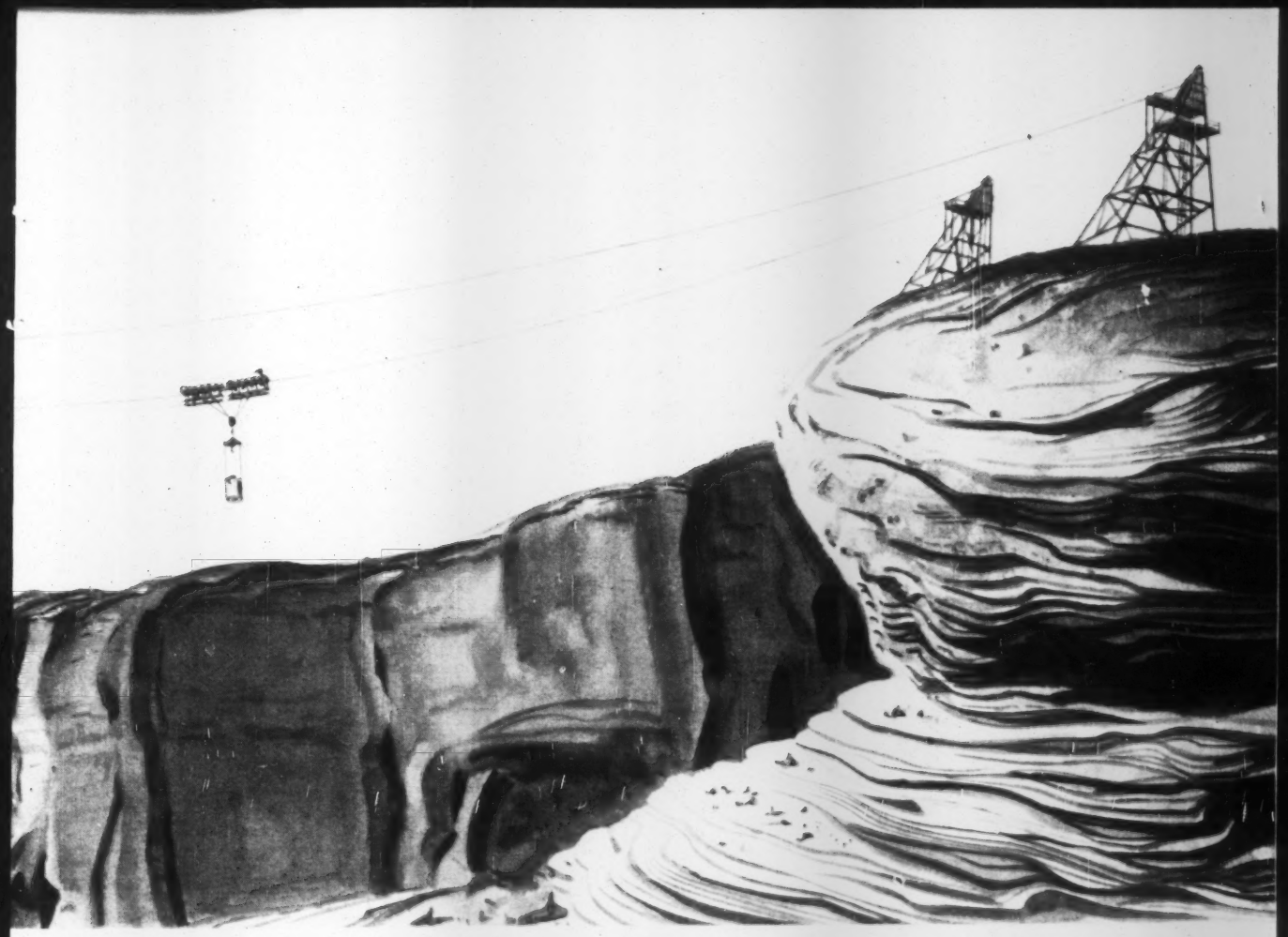
GLEN CANYON DAM

700 FEET HIGH · 1400 FEET LONG

Second highest dam in the United States, located on the Colorado River in northeastern Arizona.

Ranks with the greatest dam projects ever undertaken and is a key feature of the U. S. Bureau of Reclamation's $400 million Colorado River Storage Project.

- Reservoir capacity—28,040,000 acre feet with a lake 186 miles long.
- Power capacity—900,000 kw. in eight generators.
- Volume of concrete in dam proper—4,770,000 cu. yd.
- Contract for dam and power house—$108 million, awarded to Merritt Chapman & Scott Corp.
- Cableway contractor: Kiewit Judson Pacific Murphy Co.



Glen Canyon cableways . . . largest ever made!

MEN LOOK like midgets against the backdrop of Glen Canyon—but they are building a giant-size dam on the Colorado that will make a lake 186 miles long.

Glen Canyon will be the country's second highest dam. Its 700-foot height is topped only by the 726-foot Hoover Dam. It will require 4,770,000 cu. yds. of concrete which will be poured from two 50-ton-capacity cableways using 12-cu.-yd. buckets. This looks like an endless job, but these cableways really make speed. The contractor is aiming for an unprecedented rate of 9,000 cu. yd. daily—50% more than has previously been possible.

The track cable, or "main gut" as it is called by the dam builders, is the largest ever built. It is a 4-inch-diameter USS Tiger Brand Locked Coil Cable built at the Trenton, N. J., plant of American Steel & Wire. It has a strength of 880 tons, weighs 38 pounds per foot, and operates at a tension of 640,000 pounds. Tiger Brand operating ropes of $1\frac{1}{2}$-inch diameter will also be used on this equipment to safely convey, raise and lower the loads into position.

At the dam, one of the two cableways stretches 2,050 feet between two traveling towers on opposite sides of the Colorado River. The second 1800-foot cableway connects two shorter towers allowing the higher span to pass over the top. Working together, the cableways can place 100-ton loads such as large steel penstock sections. They can handle work in any construction area at the dam.

Another Tiger Brand Cableway using a 3-inch cable 1,490 feet long is helping to build the Colorado River Bridge, the nation's highest and second longest steel arch span.

Tiger Brand Wire Rope is engineered to fit the job . . . engineered by one of the finest staffs in the country and backed by the basic research of the United States Steel Corporation. Next time you need wire rope, rig up with Tiger Brand. It will keep your machines on the job. Write American Steel & Wire, 614 Superior Avenue, N. W., Cleveland 13, Ohio.

USS and Tiger Brand are registered trademarks

American Steel & Wire Division of USS United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors . . . Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors . . . United States Steel Export Company, Distributors Abroad

Firms Pay Anti-Trust Penalties

An anti-trust suit against six Texas companies selling oyster shell (a road-building material) has been settled. The companies will pay $120,000 in penalties.

The state and the defendants agreed on the penalties and they were approved by District Judge Wilmer Hunt, of Houston. Judge Hunt also issued an order enjoining the defendants from making any "conspiracy or agreement" to fix prices or otherwise reduce competition in selling oyster shell.

Defendants are Parker Brothers and Co., McDonough Co., Horton & Horton, Mayo Shell Corp., John Young Co., Inc., and W. D. Haden Co., all of Houston.

Texas Attorney General Will Wilson charged them with submitting identical bids on 450 separate purchase orders by the City of Houston, Harris County, the State Highway Department and other government agencies and cities between 1954 and 1958 (ENR Nov. 6, 1958, p. 129).

More than a million dollars worth of oyster shell is sold through public bids in Houston alone, Mr. Wilson said.

"This," he said, "completes the first case in our effort to protect expenditure of public monies against collusive bidding practices."

Pending are anti-trust suits against seven companies selling liquid chlorine to state agencies.

The attorney general says his staff also is investigating bidding for lime and electrical equipment. He did not say when it may be completed.

Mexicans Have Big '59 Building Plans

Mexico has scheduled an extensive 1959 program for construction of schools, factories, highways and railroads.

The recently approved national budget for this year is the largest in the nation's history—the equivalent of $750 million in pesos.

The biggest allocation, $120 million, will go to the Ministry of Education. In previous years, the Ministry of Communications and Public Works always took first place on the national budget. Now this unit has been split into Ministry of Public Works and a Ministry of Communications. Although it is in second place, public works will get a record high budget of $88 million. Through the efforts of the two agencies, some $60 million will be spent on railroads and an equal amount on highways in 1959.

About $28 million will go to the Federal Electrical Commission for completion of large hydroelectric works and some thermal plants. This is in addition to its own incomes.

Emphasis on the construction of factories is part of Mexico's plan for economic betterment.

Builders Testing Anti-Discrimination Act

Two builders, one of them William Levitt, are testing the validity of New Jersey's anti-discrimination housing law (ENR July 3, 1958, p. 82 and Oct. 30, 1958, p. 77).

In separate Superior Court suits, Levitt & Sons, Inc., and Greenfield Farms Corp. charge the 1957 law is unconstitutional. The Levitt company contends the law denies due process and that its enforcement interferes with freedom of contract. It represents an effort by the state to interfere with federal powers, the suit charges.

The law prohibits discrimination in the sale of privately-built homes bought with government-backed mortgage loans.

Complaints from several Negro families resulted in the action by the two real estate developers. Levitt refuses to sell any of the 16,000 homes in Levittown III to Negroes. Greenfield Farms, developers of Greenfield Acres near Woodbury, has also withheld its homes from Negro families.

Complaints against the builders were filed with the New Jersey Division Against Discrimination.

Failing to persuade the builders to change their policy, the division called for hearings on the discrimination charges. The suits filed by the Levitt company and Greenfield Farms will supersede the hearings.

Greenfield Farms' suit will be heard in Superior Court on February 16. A temporary court injunction preventing the Division Against Discrimination from hearing the Levitt case has been extended until the court sets a date to hear Levitt's suit.

Yea and Nay

Courts rule differently on utilities reimbursement

State reimbursement of utilities for relocating power and communication facilities from interstate highway rights-of-way remains an issue in various courts (ENR Dec. 11, 1958, p. 114).

In recent actions, courts in two states issued divergent decisions. An appeals court in Texas upheld a lower court ruling that found constitutional a law calling for utility reimbursement.

The Tennessee Supreme Court ruled a similar law in that state is unconstitutional. It was the second time within three months that the Tennessee court made that decision.

The Tennessee Highway Department estimates reimbursement would cost the state approximately $15 million.

In Texas, a district court ruled constitutional the legislation providing for relocation payments to utilities. The attorney general's office, representing the highway commission, appealed.

In upholding the district court, Judge Roy Archer of the Third Court of Civil Appeals said the law does not donate public money to corporations. He also said that neither do the payments represent a "gift or loan of the credit of the state . . ."

According to the judge, "The legislature has determined the cost of removal, relocation and adjustments of utilities is a part of the construction of the highways."

Defendants were the cities of Austin and Dallas, Southwestern Bell Telephone Co., Lone Star Gas Co., Southern Union Gas Co., and Dallas Power and Light Co.

The court's decision is expected to be appealed by the state.

Philadelphia Industries To Spend $270 Million

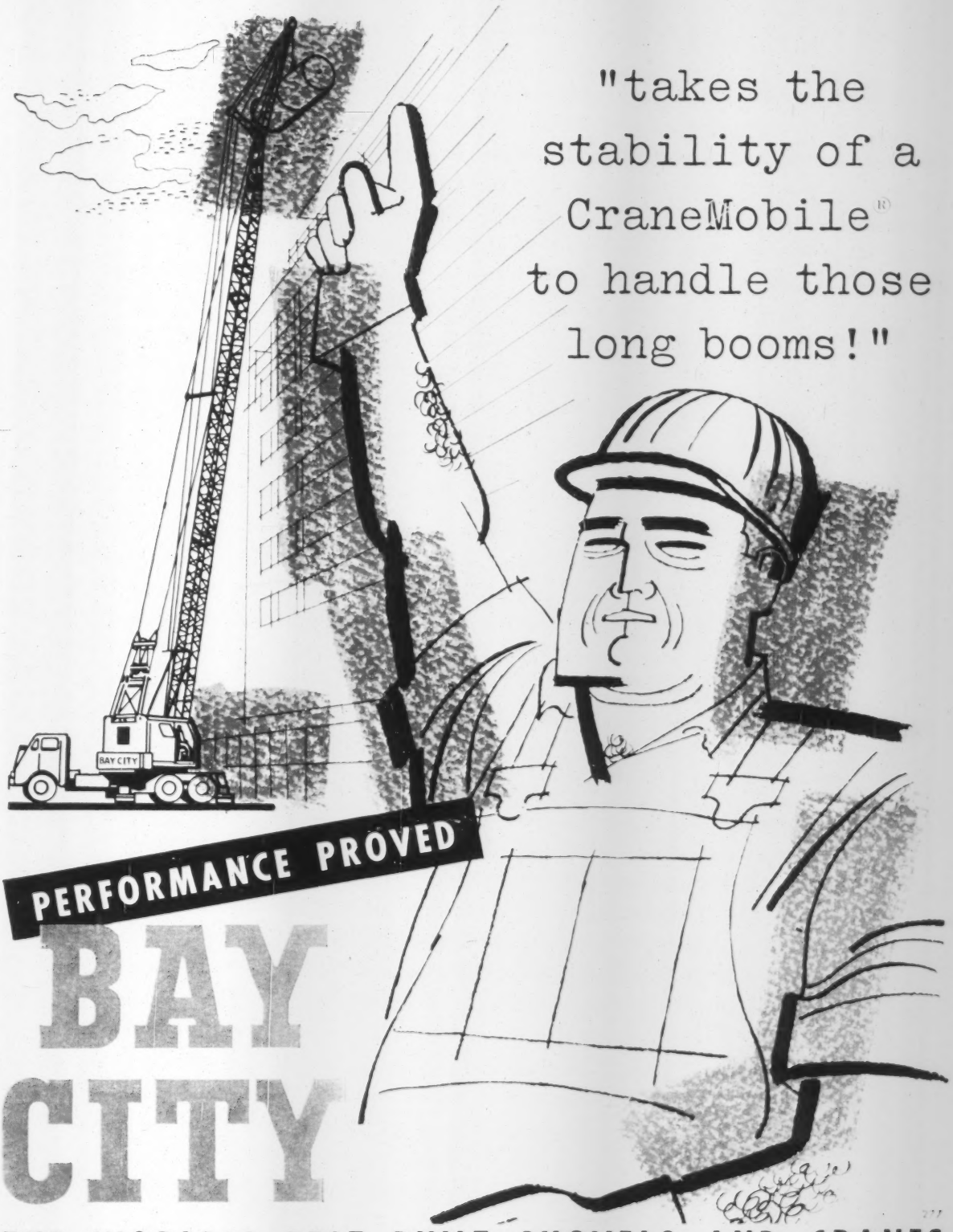
Capital spending by Philadelphia area manufacturers will total $270.5 million next year, says Leonard A. Drake, executive director of the Economics and Taxation Council of Philadelphia's Chamber of Commerce. The area includes eight Pennsylvania counties and most of South Jersey.

Mr. Drake said the 1959 total will bring spending for 1952 through 1959 to $2.5 billion.

The top three industries expected 1959 spending:

- Primary metals — $51.2 million
- Chemicals — 44.8 million
- Petroleum & coal — 40.0 million

(B&F continued on page 108)



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Contracts Rally in December

Awards in month top November by 22%, pushing 1958 total to $19.2 billion—second largest on record

The 1958 construction year ended with a bang.

December's $1.4 billion in heavy construction contracts was 22% greater than November and 40% over December, 1957, according to ENR records.

Contracts let in 1958 totaled $19.2 billion, second only to 1956, and 7% above the $18 billion of 1957.

State and municipality awards hit a record $8.6 billion in 1958. For the first time, this segment of the construction market represented the largest market for the industry. December's $737 million topped 1957 by 26% and bested every previous December total.

Federal awards in December were $152 million, 44% higher than November. The December total almost three times higher than December, 1957, brings the 1958 total for federal contracts to $2.8 billion.

• **Private work stronger.** Recent strength in private construction awards is encouraging, although no records were set in this category last year. December's $562 million jumped 31% above November and 37% above one year ago. On a weekly average basis, December was the best month since August. It brought the 1958 private total to $7.7 billion, 8% below 1957.

Private commercial building was the only type of construction failing to register a gain over November. Gains in other sectors ranged from 5% for public roads, bridges and building other than housing, to well over 100% for public housing, private bridges and private unclassified awards.

December 1958 also tallied higher than the previous December in all but waterworks, commercial and industrial buildings categories (see table).

Highway awards of $300 million in December were higher than any other December and soared 60% above last year. The 1958 highway year also set a new record. It registered $3.7 billion in total contracts, topping the previous record year, 1957, by 26%.

• **Dollar volume leader.** Mass housing surpasses highway awards by $10 million in 1958 to again take top position in dollar volume of contracts let. The $3.7 billion fell short of the record years, 1955-56, but was 23% above 1957. December's $200 million in mass housing was 88% higher than the previous December.

Several big housing developments swelled this category. Among them: a $35 million, 2,300-unit project in Denver; a $20-million, 1,600-unit project in Westminster, Colo.; a $20-million, apartment development in Philadelphia; and a $10-million, 800-unit job in New Castle, Del.

Construction Costs Rise To New High This Month

Cement price increases and deferred wage boosts push costs up to a new high this month.

ENR's 20 Cities Construction Cost Index goes to a record 778.28. This is 0.6%, or four points above the December, 1958, value and 4.7% above the January, 1958, value.

The ENR Building Cost Index increases slightly more than one point, or 0.3%, this month. It is now at a high of 536.25. Both indexes are based on 1913 = 100.

Cement price increases of 15 cents per bbl in bulk are reported in Boston, New York and Philadelphia. Boosts of 10 cents and 9 cents per bbl are reported in San Francisco and Minneapolis, respectively. However, in Seattle, prices are down 10 cents per bbl.

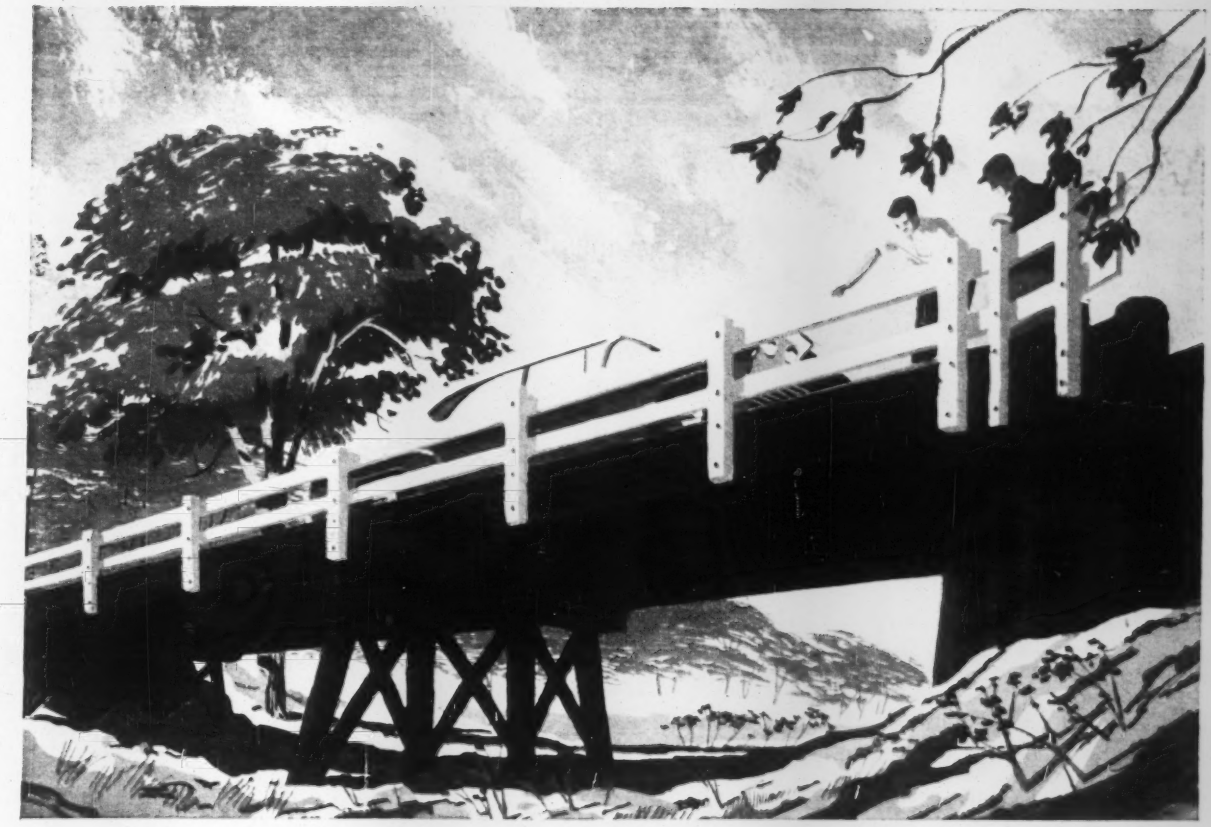
Although lumber prices have been steady in nearly all of the 20 ENR cities in the past month, the few changes reported bring the U.S. average of Douglas fir 2x4s in January slightly below December. However, the price of southern pine 2x4s ran counter to the Douglas fir trend with a slight increase in price.

Engineering Construction Contracts for December

Four Weeks—Thousands of Dollars (000 Omitted)

	December, 1958								Twelve Months			
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	% Change December '57 to '58	U. S. Cumulative 1958	U. S. Cumulative 1957	% Change '57 to '58	Canada December 1958
Public Works, Total	**37,721**	**183,674**	**186,378**	**163,060**	**125,270**	**93,439**	**789,542**	**+42**	**11,434,452**	**9,600,292**	**+19**	**34,175**
Waterworks	670	2,436	5,493	3,482	8,281	1,785	22,147	−30	306,256	369,027	−17	1,784
Sewerage	1,312	16,462	7,557	16,557	7,027	6,215	55,120	+23	617,830	556,038	+11	2,309
Bridges	328	13,431	13,426	8,735	7,952	4,123	47,995	+ 6	702,737	771,987	− 9	2,021
Earthwork, waterways	661	7,697	26,990	1,534	11,172	10,840	58,894	+133	1,044,648	969,393	+ 8	1,496
Streets and roads	16,857	71,808	49,164	93,105	51,266	23,802	306,002	+60	3,729,217	2,964,563	+26	9,589
Buildings: Residential	2,967	23,282	11,690	344	4,427	2,508	45,218	+34	1,054,904	641,812	+64	4,490
Other	6,649	44,642	34,143	27,418	25,916	30,817	169,585	+ 5	2,609,571	2,352,732	+11	10,381
Unclassified	8,277	3,926	37,915	11,885	9,229	13,349	84,581	+241	1,369,289	974,740	+40	2,105
State & Municipal	**26,927**	**166,539**	**128,680**	**151,209**	**99,622**	**64,445**	**637,424**	**+26**	**8,608,411**	**7,415,394**	**+16**	**24,404**
Federal	10,792	17,135	57,698	11,851	25,648	28,994	152,118	+191	2,826,041	2,184,898	+29	9,771
Private, Total	**53,485**	**154,056**	**57,801**	**76,063**	**155,088**	**65,805**	**562,298**	**+37**	**7,730,182**	**8,385,553**	**− 8**	**33,512**
Bridges				539			539		10,685	9,426	+13	
Buildings: Industrial	25,760	31,453	5,057	13,310	24,492	25,685	125,757	− 8	1,755,973	3,081,018	−43	9,544
Mass housing	19,083	86,772	12,259	37,935	98,695	34,764	289,508	+88	3,739,213	3,038,703	+23	11,940
Commercial	8,542	27,121	23,406	23,911	11,818	4,369	99,167	− 6	1,795,089	1,756,644	+ 2	11,628
Unclassified	100	8,710	17,079	368	20,083	987	47,327	+260	429,222	499,762	−14	400
Total Dec., 1958—4 weeks	**91,206**	**337,730**	**244,179**	**239,123**	**280,358**	**159,244**	**1,351,840**	**+40**				**67,687**
Nov., 1958—4 weeks	76,486	202,876	186,386	170,201	312,796	163,063	1,111,808					105,512
Dec., 1957—4 weeks	50,291	187,888	141,205	189,500	248,441	143,575	966,900					74,465
Twelve Months—1958	**1,288,788**	**4,776,553**	**2,732,936**	**3,457,695**	**3,921,565**	**2,987,097**			**19,164,634**		**+ 7**	**1,557,191**
Twelve Months—1957	1,191,263	4,340,329	2,258,683	3,932,700	3,470,571	2,792,299				17,985,845		1,484,834
% Change '57 to '58	+8	+10	+21	−12	+13	+7						+5

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.



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Wages Start the Annual Climb

Long-term contracts and a 50-cent package increase herald first batch of 1959 pay settlements

The New Year has ushered in substantial pay increases for thousands of union construction workers. And the first rounds in 1959 collective bargaining are keeping up the wage pace set by the industry in recent years.

The lead has been taken, as in the past, by groups on the West Coast, where three chapters of Associated General Contractors have concluded new three-year labor contracts with several of the building trades.

• **Carpenters, cement masons**—Largest of the increases, a 50-cent package goes to some 15,000 carpenters in western Washington.

An hourly wage boost of 19 cents became effective on January 1. This will be followed by 16 cents more on January 1, 1960 and another 15 cents on January 1, 1961. The 1959 wage scale is $3.32 an hour, plus 10 cents an hour for health and welfare and travel pay ranging from $1.00 to $4.50 a day.

The contract was negotiated by the Seattle, Tacoma and Mountain-Pacific Chapters of AGC.

A similar 50-cent package was accepted by cement masons in Aberdeen, Bellingham, Everett, Bremerton and Port Angeles.

Because of a preliminary settlement, part (8 cents) of the first installment of 19 cents has been in effect since September. Ten cents of it is added to the health and welfare contribution.

• **Laborers**—Some 9,000 general and semi-skilled laborers in building and heavy construction in western Washington will receive wage increases totaling 45 cents an hour over the next three years.

The first boost, 15 cents an hour, became effective January 1. Similar annual increases are scheduled for 1960 and 1961. The 1959 wage scale is $2.85 an hour, plus 10 cents an hour for health and welfare.

The union's Western Washington District Council negotiated the contract with the AGC Seattle, Tacoma and Mountain-Pacific Chapters.

• **Plasterers**—A similar wage increase, although for a shorter term, has been accepted by plasterers in Baton Rouge.

The union has agreed to a one-year contract that granted a 15-cent hourly wage increase effective January 1. This puts the present union scale at $3.15 an hour.

• **Lathers**—A more modest increase has been won by Honolulu lathers, who ended a 10-day strike just before Christmas. The union accepted a 10-cent wage increase, effective February 15, plus employer contributions to new health and welfare and apprentice-training funds. The lathers' wage scale will become $3.20 an hour when the raise goes into effect.

• **Teamsters**—In Houston, teamsters and cement masons rode in the New Year on new long-term contracts that boosted their hourly rates by 15 to 18 cents in December. The agreements will run to March 31, 1961.

Teamsters, who received a 15-cent wage boost effective December 1, will get another 3 cents on July 1 and 12½ cents more next December 1.

The cement masons' contract negotiated with the AGC, added 18 cents to the masons' scale (now $3.28 an hour) on December 1. The next two installments of the 45-cent package are 17 cents next July 1 and 10 cents April 1, 1960.

• **Deferred wage increases**—Meanwhile, union building tradesmen in other areas are having their pay envelopes swelled by automatic wage increases under previously negotiated, but still effective, long-term contracts.

In Cleveland, for example, all the building trades, with two exceptions, received 6 cents an hour more on January 1, pushing the pay scale for the basic trades to $3.80 an hour.

This is the second of four pay boosts scheduled during the life of the three-year, 37-cent labor agreement reached after the 38-day strike in May and June of last year. The settlement called for a nine-cent increase on June 18, 1958, six cents on January 1, 1959, 10 cents next May 1 and 12 cents May 1, 1960.

Trades following a different pattern are the bricklayers, who got a three instead of six-cent increase on January 1, and the electrical workers, who last year signed an 18½-cent, one-year contract that does not provide for any interim wage change.

On the West Coast, teamsters in Southern California's Joint Council 42 have decided that "a bird in the hand is worth two in the bush" and have traded a 10-cent pension contribution for a wage increase of 10 cents, effective January 1.

The increase is the last of several under a two-year contract that was negotiated during the 1957 bargaining sessions.

Equipment Firms Still Bargaining

The farm equipment construction machinery industry entered the New Year with better than half its 100,000 workers still not covered by new labor contracts and with more than a third of them actually out on strike.

Last week International Harvester Co., Allis-Chalmers Manufacturing Co. and Oliver Corp. had yet to reach agreement with the United Auto Workers Union. Deere and Co. and Caterpillar Tractor Co. settled with UAW late in 1958.

A spokesman for International Harvester, which has 37,000 workers in plants and warehouses all over the country on strike, said "some progress" has been made. But he added, "It is impossible to tell if an agreement is imminent. It may be a week or a year. We are continuing to negotiate."

Allis-Chalmers, while not a strike-bound, was in "local" negotiations last week, with "central" negotiations scheduled to resume this week. One big bone of contention is a union demand for a master contract instead of the plant-by-plant settlements traditionally negotiated.

An Oliver Corp. spokesman reported his company is "more or less marking time waiting for Harvester and UAW to reach agreement because that will set the pattern for our UAW plants."

Oliver has about 7,000 workers in eight plants, but fewer than 5,000 of them are represented by UAW. The rest are organized by the Allied Industrial Workers or the International Association of Machinists.

The Deere and Caterpillar settlements took the form of three-year contracts that add an estimated 24 to 30 cents an hour to labor costs.

Compulsory Safety Plan Begins

Utah's new program is designed to protect workers on road jobs and reduce construction costs

A formal construction safety program, binding on all highway contractors doing new construction or maintenance work within the state, has been developed by the State Road Commission of Utah.

Effective this month, all contracts for Utah road work will contain a clause requiring contractors to submit in writing an accident prevention plan for each project. The plans must be approved by the state.

Contractors will also be required to comply with existing state safety rules and commission-approved safety manuals and to file reports on accidents involving personnel or machinery.

Penalty for noncompliance is a stop order.

• **Positive action**—Planning of the program began under former Director of Highways Ellis L. Armstrong, now Commissioner of the Bureau of Public Roads.

As one of his last official state acts, Mr. Armstrong created the Office of Safety Coordinator. He named Keith M. MacFarlane to the job.

"Good accident records," Mr. Armstrong said, "just don't happen—they are caused. They are caused by formal, aggressive, positive safety effort by all—by the road commission, the engineers, the contractors, insurance carriers, the unions and the workers. This is the approach our new safety coordinator will bring into the Utah operations."

• **Lip service not enough**—The commission believes the new program will make Utah one of the leading states in accident prevention on road construction work.

The commission has made adherence to the program a contractual commitment of contractors.

The commitment, for the time being, requires compliance not only with the state's General Safety Orders but also with the Associated General Contractors' "Accident Prevention Manual." The latter will be replaced by the road commission's own safety manual, still to be completed.

Contractors must also "maintain an accurate record" of, and report on commission forms, "all cases of death, occupational disease and traumatic injury, as well as accidents and/or fires involving equipment, vehicles or materials."

No work can begin under a contract until the contractor has prepared (original and four carbon copies) an accident prevention plan for approval by the highway engineer. The plan must be binding on subcontractors.

A contractor who violates any of the new safety provisions, or who fails to take the precautions specified in his plan, is subject to a stop order from the engineer. Work cannot be resumed until the violations are corrected and a start order issued. An extension of time because of the stoppage will not be granted.

• **Guides**—Two forms of assistance are available to contractors.

One is mandatory. And that is personal conferences with a representative of the engineer in working out a safety plan.

The other is accident prevention and safety promotion material and information made available by the commission.

The latter includes a five-page "Accident Prevention Plan" prepared by the commission as a guide in working out a "project accident control plan." This covers typical safety factors that should be taken into account to protect the public and workers on the average project.

• **An obligation**—The commission feels the state has an obligation to assist all workers on state highway jobs to work safely and efficiently.

"This is not only a humanitarian obligation," Mr. Armstrong said, "but also one from the standpoint of the most economical operation. A well organized safety program will result in savings to the contractors, which will eventually be reflected in lower bid prices for road-building jobs."

The new Utah plan was worked out by a safety committee headed by Highway Director Elmo R. Morgan. The State Industrial Commission, the AGC of Utah and a consulting safety engineering firm also assisted.

Rates Go Up for TVA Workers

The Tennessee Valley Authority has increased the pay of nearly 10,000 construction and maintenance employees by an average of 4.69%, or 12.5 cents an hour. The boosts will total $2.5 million a year.

A. J. Wagner, TVA general manager, said the agreement, approved by the board of directors, was based on a wage conference between the board and representatives of the Tennessee Valley Trades and Labor Council.

The council is bargaining agent for TVA employees. It includes 15 AFL-CIO craft unions.

"Under the TVA act," Mr. Wagner said, "TVA must pay the prevailing rates of pay for similar work in the vicinity. The new rates, therefore, reflect pay increases negotiated during the past 12 months between private employers and unions in the region."

The wage increases were effective December 28 for 4,700 annual employees and January 5 for 5,100 hourly employees. Construction workers are paid by the hour. Operating and maintenance employees are paid an annual salary.

Craft	Increase (cents per hour)	New rate
Boilermakers	15.0	$3.60
Bricklayers	7.5	3.70
Carpenters	12.5	3.07½
Electricians	20.0	3.45
Iron workers (structural)	15.0	3.35
Laborers	12.5	1.85
Lathers	10.0	3.17½
Operating engineers (heavy equipment)	10.0	3.30
Painters	15.0	3.17½
Plasterers	10.0	3.25
Plumbers, steamfitters	12.5	3.45
Roofers	10.0	2.55
Sheet metal workers	12.5	3.27½
Teamsters (heavy trucks)	10.0	2.47½

Electricians received the largest increase and bricklayers the lowest.

A year ago, wages of the same group of employees were increased 4.94%, or an average of 13 cents an hour.

In the maintenance and operating classifications, carpenters received an increase of $245 a year, laborers $155 and journeymen metal tradesmen $285.

Labor continued on page 112.

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Trouble Shooters

New Meany teams may ease industrial-craft struggle

The AFL-CIO's 10-month-old jurisdictional peace plan between the Building Trades and Industrial Union Departments is showing some signs of progress.

AFL-CIO President George Meany last month named two teams of investigators to probe trouble spots where rival unions are claiming the right to perform construction work. These teams have already handled close to 20 cases, with reports of some success.

A building trades' spokesman says one "major" dispute, still unidentified, has been settled, with the Industrial Union Department giving up its job claim on a construction project. The spokesman, while cautious about the future, notes that some progress is being made in the long and bitter job rivalry that has adversely affected the principle of construction by contract.

Mr. Meany, who helped develop the peace plan in Miami last year, named IUD official James C. Gilden and Anthony Smith, of the plumbers union, as one team, and Matthew Taylor, of the iron workers, and Thomas A. Burke, of the auto workers union, as the other. A third team is still to be named.

As the first step under the jurisdictional pact, these teams are assigned to investigate construction jobs where craft and industrial unions assert rival claims to the work.

Acting primarily as fact-finders, they lay out the facts before Building Trades President Richard Gray and IUD representative Richard Leonard. (Mr. Leonard takes the place of IUD Director Al Whitehouse, whose United Steelworkers Union has refused to go along with the peace plan.)

If the dispute remains unsettled it is sent to an AFL-CIO subcommittee. Several cases have already gone to this committee, while others have been worked out on the second level.

Under the plan, all new construction work belongs to the craft unions and running maintenance and repair work belongs to the industrial unions. The area in between, covering alterations and major repairs, is in disputed territory.

So far, the Building Trades Department has referred more than 100 cases to the AFL-CIO for settlement.

The craft-industrial union dispute had plagued the AFL-CIO since the merger in 1955 and has been a continuing roadblock to the achievement of labor unity.

Unions Honor Their Employers

Management excellence in labor relations on an $80 million construction project near Yankeetown, Ind., received a public tribute from organized labor last month.

Eighteen Evansville building and construction trades unions—all from the AFL-CIO, except for the teamsters—presented certificates of appreciation to Ebasco Services, Inc., engineering, construction and business consulting firm, and to the Aluminum Company of America for "outstanding" labor relations work at the Warrick Works power plant being built for Alcoa.

The unions attributed two years of labor harmony without work stoppages of any kind to "honest and fair treatment" and to "accurate work assignments."

The Ebasco award was presented by Evansville Building Trades Council President James Clemons (right) and was accepted for Ebasco by E. K. Wilkins (center), vice president-construction. John Soncrie (left), laborers business representative, was one of the 18 citation subscribers.

Mr. Wilkins, in accepting the award, said: "The record achieved during this construction period proves beyond a doubt that adherence to a sound set of ground rules by labor and management has resulted in a construction project in which we can both take pride."

Springboard for the Warrick labor record was a "Declaration of Policy" agreed to by the unions and employers on December 8, 1956, shortly after construction work began. The declaration sets forth an agreed upon procedure "for the efficient prosecution of the work" and the "orderly" settlement of all disputes. It bans work stoppages pending settlement of grievances and requires that jurisdictional disputes be handled under National Joint Board procedure.

Big Brown-Olds Penalty Hits a Teamster Local

A West Coast local of the teamsters union has experienced what plumbers union President Peter T. Schoemann calls the "risk of being slugged under Brown-Olds."

The National Labor Relations Board has ordered Local 501 in Vancouver and Teamsters' Joint Council 37 in Portland to repay approximately $22,500 collected in union dues and fees from workers employed by Jones-Tompkins Construction Co., Seattle, on the recently completed Swift Dam near Portland.

The order is another illustration of the "big stick" now being used by the NLRB to compel the construction industry to comply with the Taft-Hartley Act provision that a worker need not be a union member in order to get a job.

Observing that the teamsters had engaged in unlawful hiring practices, the board said the union had "in effect maintained a closed shop."

The reimbursement order covers 150 teamsters who worked on the project from November 1956 to completion.

OFFICIAL PROPOSALS

Bids: February 3, 1959

Contract GWB-190.005

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
LOWER LEVEL EXPANSION
NEW YORK APPROACH
SECTIONS 4 AND 6

Pursuant to the provisions of the Highway Law and special provisions for projects financed with Federal Aid Funds, sealed proposals for the construction of Sections 4 and 6 of the approach roadway system in New York for the lower level expansion of the George Washington Bridge will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, February 3, 1959, at which time said proposals will be opened and read in Room No. 1100.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $40.00 per set for not more than three sets to any one company, each set including one copy of the contract drawings. Additional sets will be furnished upon payment of $20.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 8, 1959

U. S. Government

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until 1:00 P.M. January 28, 1959, and at that time publicly opened for the following: excavation in the dry of approximately 1,000,000 cubic yards of material and drilling approximately 500,000 L.F. of blast holes, and the use of approximately 1,000,000 pounds of explosives to break up material which will be excavated and disposed of by the dredging division of the Panama Canal Company. Plans and specifications are available for examination in the office of Chief, Procurement Division, Panama Canal Company, 21 West Street, New York 6, N. Y. Telephone Bowling Green 9-5580, Extension 77. Data may be obtained upon payment of $5.00 deposit, which will be refunded when data are returned. Reference: PC-5028.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. Be-5433) will be received at Albuquerque, New Mexico, until 10 a.m. Mountain Standard time, January 27, 1959, for furnishing labor and materials for channelization of the Rio Grande Albuquerque Area Unit 3, Middle Rio Grande Project, New Mexico. Location near Albuquerque, New Mexico. Principal items are 135,000 cu. yds. excavation, 6,350 units of furnishing and erecting metal jetty units, 238,000 lb. ft. of furnishing and installing 7-inch wire rope, and other work. Completion time, 365 days. For particulars, address Bureau of Reclamation, P.O. Box 232, Albuquerque, New Mexico, or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. Be-5435) will be received at Ephrata, Washington until 10 a.m. Pacific Standard Time, February 17, 1959, for furnishing labor and materials for earthwork and structures, Block 52 lateral, waste-ways, and drain, Royal Branch Canal Laterals, Columbia Basin Project, Washington. Location northeast of Beverly, Washington. Principal items are 375,000 cu. yds. excavation, 75,000 cu. yds. earth lining, 720 cu. yds. concrete in structures, 10 units furnishing and installing outdoor-type pumping units, and other work. Completion time, 180 days. For particulars, address Bureau of Reclamation, P.O. Box 590, Othello, Washington, P.O. Box 365, Ephrata, Washington, or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: January 29, 1959

New York State Road Work

NOTICE TO CONTRACTORS. STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law and Special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M. eastern standard time on the 29th day of January 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following Projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 333 Broadway, Albany 1, New York						
Washington (Rte. 22)	FASSH 59-3	Morrow Corners-West Granville Proj. S-5311-3	4.50	Bit. Double Surf. Treat. Stone 4.47 Mi., Misc. Work 0.03 Mi.	$30,000 Plans $5	$908,000
Albany	M 59-1	Ontario Street Bridge, Cohoes (Old Champlain Canal)	0.02	Replac. Exist. Bridge with Corr. Metal Pipe Culv. and Misc. Work	$1,000 Plans $10	$27,000
District No. 4, R. E. Penny, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe	LOSP 59-1	Lake Ontario State Parkway Sections V and B	10.40	Landscaping	$6,000 Plans $5	$107,000
DISTRICT No. 5, E. G. H. Voss, Jr., District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Niagara	M 59-2	Suspension Bridge I-290 over Erie Barge Canal		Clean and Paint, Thru Truss Bridge 148' Span	$250 Proposal Only No Plans $2	$1,500
DISTRICT No. 6, James R. Thomas, District Engineer, State Office Bldg., 50 West Main Street, Hornell, New York						
Allegany (Rte. 21)	FGRC 59-1	Andover-Alfred Station, Almond, S.H. 5502 Proj. FG 59(6)	0.52	9" Conc. Conc. Pavt., 20' Wide R.R. Sep. Plate Girder 106.5' (1 Span)	$20,000 Plans $5	$507,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 317 Washington Street, Watertown, New York						
Clinton (Rte. 87) Int. Tour. Rte. 87)	FISH 59-2	Interstate Route 502, Sect. 2R-1, Salmon River to Rugar St., Plattsburg-Keeseville, Pt. 1, S.H. 50 and Access Roads Proj. I-IG 1(19)20	4.19 0.19 Var. 0.58 R.R.	Asph. Conc. 3.64 Mi., Misc. Work 0.56 Mi., Asph. Conc. 0.19 Mi., Asph. Conc. R.R. Track Relocation 0.58 Mi., 2 Precast Prestressed Conc. Box Bridges Each 147.7' (4 Span) and 100.5' (6 Span), 2 Pre-Cast Pre-Stressed Conc. Hy. Sep. 240.7' (5 Span) and 293.6' (6 Span), 2 Weld. Plate Girder R.R. Sep. 375.7' (4 Span) and 213.2' (4 Span)	$280,000 Plans $10	$5,120,000
DISTRICT No. 8, Kent G. Rector, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Dutchess (Rte. 216) Orange	FGRC 59-1 CH 60-1-56(1) CH 218-10-58(1)	Putnam County Line-Stanfordville, S.H. 1163 Proj. SG 5431(1) East Orange County Residency Headquarters, Newburgh	0.40 0.46	Bit. Double Surface Treat. R.R. Sep. Conc. Built-Up Beam 90' (1 Span) Conc. Sidewalk and Curb	$9,500 Plans $5 $350 Plans $5	$167,000 $6,000
DISTRICT No. 9, Joseph C. Emmick, District Engineer, 71 Frederick Street, Binghamton, New York						
Chenango & Delaware (Rte. 206)	FASSH 59-1 FASSH 59-5 FARC 59-2	Bainbridge-Masonville, Pt. 1B, Bainbridge-Masonville, Pt. 2, Sidney-Masonville, S.H. 1409 Proj. S-5273-2, I-548-5(1)	6.63	Asph. Conc. Ty. 1A Comp. WF Beam Bridge 212.5' (3 Span), Pre-Cast Conc. Beam Bridge 25.5' (1 Span)	$40,000 Plans $5	$1,582,000
DISTRICT No. 10, M. E. Gurt, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx Int. Tour Rte. 95)	FICRE 59-1	Interstate Route Connection 511, Cross Bronx Expressway (Harlem River to Jerome Ave.), Cont. 1G Proj. I-108(14)1	0.74	Demolition of Build.	$15,000 Plans $5	$270,000
Kings	FAPE 59-1	Prospect Expressway, Fort Hamilton Parkway Interchange, Greenwood Ave. to Beverly Rd.) Proj. I-108(14)	0.54	9" Col. Cem. Conc. Pavt., 2 @ 37' Var. Wide 0.41 Mi., Sheet Asph. Pave. 0.10 Mi., Misc. Work 0.03 Mi., 2 Hy. Sep. Comp. Steel Beams 135.5' (2 Span) and 130.1' (2 Span), 1 Hy. Sep. Weld. Plate Cont. Girder 196.5' (2 Span), 1 Ped. Overpass Weld. Thru. Plate Girder 212' (2 Span), Alterations to Subway Vents and Station	$340,000 Plans $10	$6,027,000
Nassau (Rte. 25D)	FAHHE 59-1	Horace Harding Expressway Extension, N.Y. City Line to Willis Ave., Cont. No. 5 Proj. I-862(3)	1.31	Landscaping, Fencing and Misc. Work	$16,000 Plans $5	$313,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal Aid Highway Act of 1956" being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 113 (Prevailing Rate of Wages) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City. The deposit for Plans and Proposal Forms for each contract as indicated above is refundable to bidders for return of the set in good condition, within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON,
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

ADDRESS BOX NO. REPLIES TO: Box No. Classified Ads. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

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The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

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Position Wanted ads take 1/2 of above rate.

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Discount of 10% if full payment is made in advance for 4 consecutive insertions.

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Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

• POSITIONS VACANT

Wanted: Young graduate Engineer, preferably single, interested in overseas assignment with Consulting firm. State education, background and experience. Reply fully to P-8394, Engineering News-Record.

Projects Manager wanted for position with expanding general contracting firm with home office in Ohio; specializing in industrial, commercial, and public works. Top level management position for man experienced in organizing and managing jobs of considerable magnitude; extensively experienced in expediting, estimating, pricing, purchasing, and dealing with sub-contractors and owners. Must be ambitious, have intense initiative, and be willing to travel. Prefer a graduate engineer or equivalent. If you are looking for a permanent position with an aggressive concern, where you can exercise your abilities, and be well compensated for same, send complete history, including education, past experience, references, salary expected, and photograph, if available, to P-9495, Engineering News-Record. All replies will be held in confidence and promptly answered.

Wanted Architectural Draftsman with 2 or more years experience. Excellent opportunity with established consulting engineering firm in middle west. State education, background and experience. Reply to P-8590, Engineering News-Record.

Wanted Registered Architect with 4 or more years experience. Excellent opportunity with established consulting engineering firm in middle west. State education, background and experience. Reply to P-8615, Engineering News-Record.

Civil Engineer-experience and ability in de-sign of sewers-sewerage treatment plant. State educational background, experience and salary desired. P-9576, Engineering News-Record.

Structural steel designer and estimator, in-dustrial and miscellaneous steel structures, steel plate fabrication. Graduate engineer, 30-40, minimum 5 years design experience. Permanent employment, paid vacations, group insurance plan, good schools. Excellent opportunity. Location Mid-Continent. Reply fully, giving resume of experience, education, age and salary requirements to P-9557, Engineering News-Record.

Wanted—graduate Sanitary Chemist. Must have minimum of two years experience in water or sewage treatment laboratory and be qualified for bacteriological analyses. Applications accepted through January 31. For details send brief resume to Superintendent Waste Treatment, City Hall, Waterbury, Connecticut.

Grad Engr. approx age 28-33, outstanding exp in bldg constr. for diversified mgt. position. NYC & LI GC. P-9591, Engineering News-Record.

Mechanical Engineer with 4 or more years experience in design of mechanical features of buildings and facilities including heating, plumbing and ventilating for civilian position with Navy in Alaska. Annual Salary $11,000. Send detailed resume to District Public Works Office, 17th Naval District, Kodiak, Alaska.

Sanitary Engineer for large health department in rapidly growing county of 350,000, adjacent to Washington, D. C.; modern, spacious, air conditioned buildings; bachelor's degree plus 4 years of experience desired. Approximate salary range $7200 to $8475, but open to negotiation. Write Murray Grant, M.D., Prince George's County Health Department, Cheverly, Maryland.

Civil Engineers experienced in Land Planning Design, Sanitary Engineers experienced in Design of Water and Sewage Facilities. For employment in Florida. Send Resume and References to Rader and Associates, 113 N. E. 2nd Avenue, Miami 32, Florida.

Wanted—City Engineer, minimum age 35-40, to head the department in a town of over 50,000. Must have considerable background experience. Contact Ivan Brass, Director of Personnel, Sioux City, Iowa.

City Engineer and Director of Public Works. Yuba City, California. Pop. 11,000. California registration and minimum of three years responsible public works experience, preferably municipal. Salary Range $611-$743. Apply City Administrator, City Hall, Yuba City, California. Closing date January 21, 1959.

• POSITIONS VACANT

Draftsman—Minimum of 5 years experience in plans for pumping stations and treatment plants for water and sewerage projects. Salary commensurate with ability. Go man consulting engineering firm in Central New York. Send detailed resume, references, etc., to Donald E. Stearns, P. E., Civil and Sanitary Engineers, 90 Albany Street, Cazenovia, New York.

Engineering Positions Available. Hydro Power Plant Construction—(1) Form Design—(2) Lift Sheet—Supervision and Layout—(3) Construction Plant and Equipment Layout. Reply to P. O. Box 947, Falls Station, Niagara Falls, N. Y.

Office Manager (Highway Construction) Must be familiar with and keep weekly unit costs, filing and payrolls. Two Big Projects, Southern Ohio. Highest qualifications and references required. P-9605, Engineering News-Record.

Sewer And Water Line Superintendent experi-enced in South Florida or equivalent conditions. This man must have sober habits, ability and aggressiveness to take complete charge of work in the field. He should know equipment and how to work same. He must be capable of assuming general superintendent duties later on for an aggressive and medium size company. Please give complete experience record and education in first reply which will be treated confidential. P-9650, Engineering News-Record.

Engineer, 30 to 40 yrs. experienced in sewer and water line construction and treatment plants, both field and office. Must have sober habits, ability to meet people, management possibilities and the ability and aggressiveness to advance in medium size but aggressive company located in South Florida. Please give complete experience and educational record in first reply, also recent photo. P-9656, Engineering News-Record.

Wanted M.S. structural engineer to head de-sign of indeterminate structure department in a well established firm. Permanent position, excellent living conditions, future association for properly qualified person. Location—N. C. P-9618, Engineering News-Record.

Wanted: Chief Estimator. Judicious Buyer. Graduate Civil Engineer. Proven Ability. Willing to assume responsibility. Salary and participation. Send Complete resume, salary expected. Executive Office, Delaware Valley. P-9617, Engineering News-Record.

Construction estimator-superintendent for specialized non-building general construction. Must be capable of taking complete charge of operation. Based in Phila. Salary and percentage. Write P-9516, Engineering News-Record.

• EMPLOYMENT SERVICE

Salaried Personnel $5,000-$30,000. This nationwide service successful since 1927 finds openings in your field. Sells your abilities, arranges contacts. Present position protected. Write for details. Lyle Thayer Jennings, P. O. Box 671, Manchester, Vermont.

• POSITIONS WANTED

Const. Supt. 25 yrs experience in commercial buildings. Available now. PW-9328, Engineering News-Record.

Construction Supt. General Construction. PW-8806, Engineering News-Record.

Equipment Superintendent: Seven foreign completed contracts. Available February. PW-9583, Engineering News-Record.

• POSITIONS WANTED

Chief Estimator—Graduate civil engineer, 35 years old. Responsible for estimates on multi-million dollar projects, buildings, sewage treatment plants, power houses, bridges. Careful, judicious buyer. PW-9416, Engineering News-Record.

Structural designer, 20 yrs. exp. on various steel & concrete structures. Four yrs. on bridges. Cornell grad. East or mid-west. PW-9445, Engineering News-Record.

Resident Engineer—Supervision of Construc-tion large industrial projects. Presently employed overseas. Desires change of location 20 years overseas. Resume on request. Available January. PW-9577, Engineering News-Record.

Construction Engineer 36, thirteen years ex-perience with consultants and contractors as superintendent of construction and also project engineer. State Highways, Bridges, water and sewage works, and power plants. PW-9622, Engineering News-Record.

Field Office Man—Cost, Payroll, Paymaster, Personnel, Purchasing, Administrator. 12 yrs Experience—Mobile. PW-9621, Engineering News-Record.

Construction Superintendent—Estimator 20 years experience all types building construction good ref. Available Jan. 15, 1959. PW-9614, Engineering News-Record.

Engineers — Contractors — Laboratory — 22 years progressive heavy construction experience: Sewers, Concrete, Earthwork. Versatile, Dynamic, Practical Know-How, member ACI and ASTM. Available Jan. 15th. Contractor's Supt., Foreman, Office Mgr., Consultant's Res. Asst. Sen. Inspector, Laboratory's field or project Manager. Resumes to all replies, locate anywhere. J. P. Wallace, 1117 Richmond Ave., Apt. 14 Houston 6, Texas. Telephone: JA 3-9764.

Engineer—BSCE—35—Over 10 years experi-ence in materials and soils, supervision of construction on dams, highways and tool roads. Prefers permanent position in Mid-west or West. PW-9619, Engineering News-Record.

Construction Executive. Wide experience in general contracting field as supt., construction manager. Proven record as a producer with top grade contractors. PW-9605, Engineering News-Record.

Construction Mgr. Proven capability, $75,000.00 minimum. Available immediately. PW-9618, Engineering News-Record.

Construction Supt. Top level only. Available immediately. PW-9614, Engineering News-Record.

Sales Engineer; B.S. Architectural Engn.— 3 yrs. structural steel detailing & estimating —4 yrs design, production & sales promotion of precast concrete products; seeks sales engineering position in south or west. PW-9602, Engineering News-Record.

Structural Engineer, MSCE, AMASCE, regis-tered, age 35, 13 years experience in design of steel, reinforc. concrete & prestressed concrete heavy structures, bridges, tunnels, industrial & commercial buildings. Desires to work with engineer or architect firm in San Francisco area. Presently employed. PW-9594, Engineering News-Record.

Concrete Inspector, Canadian, recent immi-grant. Age 30, 10 years experience in hydro-electric and heavy industrial concrete inspection. Member A.C.I. & A.S.T.M. Excel. references. Experienced all phases of control and construction. PW-9472, Engineering News-Record.

(Continued on the following page)

ENGINEERS

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PREFER GRADUATE REGISTERED ENGINEERS WHO SEEK LONG RANGE EMPLOYMENT WITH AMPLE OPPORTUNITY FOR PROFESSIONAL DEVELOPMENT AND ADVANCEMENT IN A STEADILY EXPANDING AND GROWING ORGANIZATION.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Work will be in the general offices in St. Louis. Interviews can be arranged in Washington, D. C., and San Francisco also.

Please write fully, including salary data, to

SVERDRUP & PARCEL, Inc.
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UNPRECEDENTED WATER DEVELOPMENT PLAN OFFERS UNUSUAL OPPORTUNITIES FOR

CIVIL-HYDRAULIC ENGINEERS

For planning, design and cost estimates for dams, aqueducts, canals, power and pumping plants.

Investigation of ground water basins in relation to water supply, percolation rates, storage capacity, and yield.

Soils engineering related to design of levees and investigation of drainage problems.

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For planning, design and cost estimates for long span bridges for bay toll crossings.

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All positions require engineering degree (Civil preferred) and two years suitable engineering experience after college.

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$530 to $644 a month

Positions open at these levels only.

U. S. Citizenship required

Send resume to: C. S. WARNER, Supervisor, Section E, 801 Capitol Ave., Sacramento 14, Calif.

STRUCTURAL STEEL DESIGNERS & ESTIMATORS

Wanted immediately. Must be experienced and have good personality. Opportunity to be branch office manager. Prefer man in forties.

This leading Southern company has plants located in six cities.

Replies will be held in confidence. Interviews arranged with qualified applicants.

Please send complete resume to

P-9454, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

First class, experienced building Estimator for responsible position with established contractor. Salary commensurate with qualifications and responsibility.

J. M. ODOM, General Contractor
P. O. Box 774 Austin, Texas

ENGINEERING DESIGN PERSONNEL

Highway & Bridge Designers, Highway & Bridge Draftsmen

Openings in Pennsylvania, Ohio, Maryland & West Virginia

Career opportunities for individuals interested in professional recognition ample opportunity for advancement based on merit, plus employee retirement plan, group life insurance, hospitalization, paid vacation and holidays.

EXPERIENCE REQUIRED

Mail Resume To: F. W. AHERN, Personnel Director

MICHAEL BAKER, JR., INC. *Consulting Engineers*

Baker Building Phone SPruce 4-3010 Rochester, Penna.

RESIDENT ENGINEER

To supervise construction of 122 kilometer highway in Iraq. Fifteen years experience required. Excellent salary plus furnished house free for self and family. Approximately two to two and one half years term. Please send complete resume and specify salary required.

HARZA ENGINEERING COMPANY
400 W. Madison St., Chicago 6

SOILS ENGINEER

Long established progressive company, known as a leader in stabilizing and dewatering excavations, offers permanent, rewarding research and development position on headquarters staff. You must have technological background and field experience in heavy construction work, with emphasis on ground water seepage and pumping problems.

The position offers many employee benefits, liberal salary commensurate with ability. Please send resume of experience, etc. Replies held in confidence. Our staff knows of this ad.

P-9509, Engineering News-Record
520 N. Michigan, Chicago 11, Ill.

• POSITIONS WANTED
(Continued from preceding page)

Desires to Develop Underwater Auto Tunnel with flexible joints for complete assembly at surface. 6 yr. research experience age 29, BSCE, PW-9055-C, Engineering News-Record.

Engineer & Architect—Representative S.E. or S.W. Area. P.O. Box 5[illegible]6, Miami Shores, Fla.

Reg. Surveyor—Exp. developments—City Work, railroad, Highway Const. Resume on request. PW-9048, Engineering News-Record.

Estimator ready to take complete charge and be responsible for estimates for general contractor. Graduate engineer, CE, Thoroughly experienced all types heavy, industrial, commercial and public works projects. PW-9043, Engineering News-Record.

Young Graduate Engineer, 28, B.S. Arch. Eng. seeks career opportunity with manufacturer or fabricator in engineering-sales. Six years varied experience in construction, design, and engineering administration. P.O. Box [illegible], Metairie, La.

Proj. Mgr., Const. Supt., Spec. Writer, 30 yrs. varied CE experience. PW-9019, Engineering News-Record.

Registered highway engineer, land surveyor, 20 years experience. Engineer or construction superintendent, highways, bridges, sewers. PW-9057, Engineering News-Record.

Contractor's Engineer — Graduate C.E. licensed in N.Y. and N.J. Heavy Construction and Buildings. Wide experience in estimating, purchasing, supervision, and project management. "Bid to Completion" experience. PW-9016, Engineering News-Record.

Graduate Civil Engineer, 25, married, over three years varied experience including construction inspector U.S. Corps of Engineers, construction surveying, office design of Public Utilities, and Project Engineer for Capehart Housing. Will consider all offers including overseas work. Presently in Military Service. Available about March 1. PW-9001, Engineering News-Record.

Field Engineer: 32, 10 years inspection & supervision Soils, Concrete, Asphalt & Mat Airports, Highways & Bldg. Sites. State job location & salary. PW-9047, Engineering News-Record.

When Answering
BOX NUMBERS . . .

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

SEARCHLIGHT SECTION

CLASSIFIED ADVERTISING

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The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured 7/8 inch vert. on one col., 3 columns—30 in. to a page.
EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

THOUSANDS OF NATION'S LEADING GENERAL CONTRACTORS use the TAMBLYN SYSTEM of ESTIMATING. 150 Tables giving Hours and Materials factors. Accurate, rapid calculating. Send for FREE samples of tables and cost estimate.

TAMBLYN SYSTEM
1455 - 38th Ave., Dept. E
Columbus, Nebraska

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• *CONTRACT WORK WANTED*

Engineering group available for studies, design, detailing or contractor's services. (AW-9525) Engineering News-Record.

• *OFFICE SPACE FOR RENT*

B'way, 350—New York City. New light modern building. 5,000 sq. ft. Ideal for Engineering concern, located near all transportation. Will subdivide to suit. WO 2-4470.

SEARCHLIGHT Equipment Spotting Service

This service is aimed at helping you, the reader of SEARCHLIGHT, to locate Surplus new and used Engineering and Construction equipment not currently advertised. This service is for USER BUYERS only. No charge or obligation.

How to use: Check the dealer ads to see if what you want is not currently advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Spotting Service
c/o ENGINEERING NEWS-RECORD
P. O. BOX 12, N. Y. 36, N. Y.

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Spotting Service
c/o ENGINEERING NEWS-RECORD
P. O. Box 12, N. Y. 36, N. Y.

Please help us locate the following equipment components:

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NAME .....
TITLE .....
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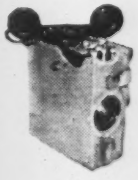

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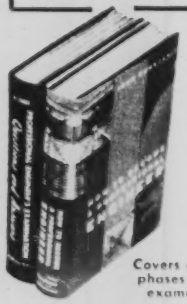

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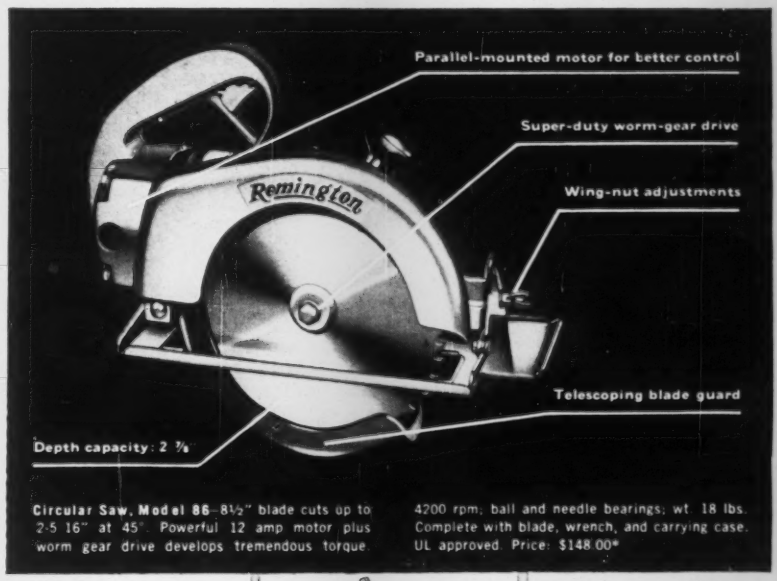

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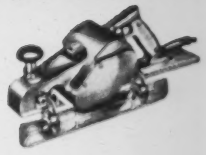

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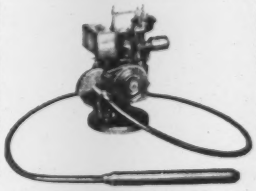

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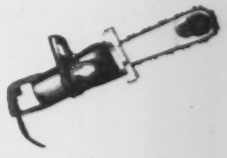

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Labor Must Decide

A HAPPIER NEW YEAR for everyone can be assured in 1959 if the honest and responsible leadership in union labor can effectively help mold and support legislation in Congress to curb the irresponsible and even criminal actions that are now possible in the name of "labor gains." No one but the racketeer and the self seeking, power hungry labor leader gains from these actions. Everyone, including the workingman himself, loses because of them.

The construction industry is particularly in need of help to eliminate sabotage, threats of bodily harm and the paying of tribute. State laws and local law enforcement agencies have proved so ineffective in these cases that strong federal laws are badly needed.

Aid in limiting strikes to legitimate issues and in avoiding them, as long as collective bargaining continues in good faith, would also do immeasurable good. Secretary of Labor James Mitchell has said that man days lost by strikes in 1958 were lower than in any postwar year except 1957. But in construction the reverse is true. Idle time caused by work stoppages in major strikes (those involving 10,000 or more workmen) added up to 2.2 million man days in 1958, twice the comparable figure for 1957.

A reduction of these work stoppages, not only in construction but everywhere in the economy, would be a truly great "labor gain"—in many instances putting more money in the pocket of labor than a wage increase won as a result of a strike. A case in point is the newspaper deliverers' strike just settled in New York. The men got no more than they were offered before the strike, and 20,000 other newspaper workers were deprived of two weeks' salary, not to mention the tremendous loss of revenue the newspapers (and therefore the economy) suffered when the normally large volume of Christmas advertising could not be published.

The newspaper case illustrated still another aspect of strikes that is distinctly not a "labor gain." This is the inconvenience and hardship suffered by an innocent public whose resulting anger can only harm labor's cause. The same results are even more sure to follow the strikes that have grounded a third of the nation's commercial airplanes during such high travel periods as Thanksgiving and Christmas. Labor, in its own interest, should have seen to it that none of these strikes was allowed to occur.

Local autonomy has often been said to be the backbone of the trade union movement, but it has also proved to be a practical roadblock to AFL-CIO efforts to cleanse its ranks of corruption. This is a dangerous situation. For so long as responsible labor leadership at the local action level continues to oppose laws designed to curb racketeering and legal means to avoid unjustified work stoppages, labor itself and the whole economy will continue to suffer unnecessarily—and sometime, perhaps, fatally.

Sooner or later labor must view itself as all the people, and decide to act as though it were responsible for the people's welfare. If that decision could be made in 1959—and the time is propitious since a Congress unquestionably friendly to labor's aims will be in session—a remarkably happy New Year would ensue.

Unity: A Restatement

READER COMMENT in this issue includes a letter (p. 8) setting forth arguments against full acceptance by the engineering profession of Engineers Joint Council as its collective voice. We are pleased to publish these arguments, but we are unmoved by them. We'll stick to our previous editorial stand that it's time the National Society of Professional Engineers joined the other major engineering societies in EJC to help strengthen it as voice of the engineer (ENR Nov. 6, 1958, p. 132).

It is true that there are many other organizations having engineers in their memberships that are not among EJC's constituents or affiliates. But among them, NSPE is the major engineering society concerned with professional matters—the one that could add appreciably to EJC's strength by uniting with it.

If NSPE were to join EJC, it is asked in our reader's comment, whom would it represent? Obviously, it would represent its own members, just as it does now. Affiliation with EJC "should not deprive NSPE of the right to speak on matters of special interest to it, such as registration for engineers. Similarly, no one of the other engineering societies participating in the joint arrangement should be deprived of the right to take prompt and independent action on matters of special interest to its members." This statement is as true today as it was when it first appeared on ENR's editorial page—Mar. 8, 1945.

The claim in our reader's comment that NSPE, because its members are all registered, is the logical spokesman for engineers on professional matters is a hollow claim. The society represents few more than 40,000 engineers, and legal registration still is not so perfectly established as to be the one, true measure of a professional.

There are lots of weaknesses about EJC—its finances, its concern over tax status and its remoteness from the grass roots, to name a few. As the Voice of the Engineer, EJC is often inarticulate, often inaudible. But the greatest single weakness we see in it right now is that it does not have the added strength NSPE could bring it.

Here's another argument from the ENR editorial of 1945 that has stood up so well for almost 14 years: "The great engineering societies of America (should) band themselves together in an overall organization through which they may exert one powerful voice on those matters of national interest in which all engineers have a common stake." Now the great engineering societies are banded together—all save one. And as we've believed for 14 years, it's about time.

as in Detroit Today . . .

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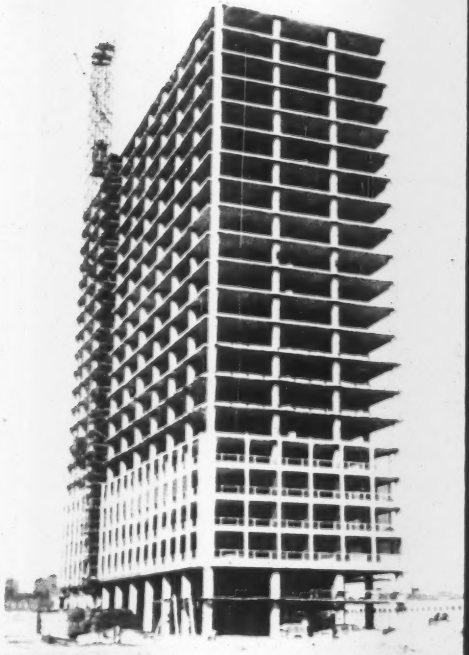

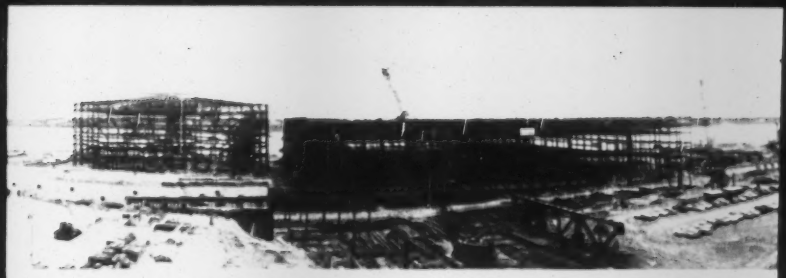

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